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FUNCTIONS AND BASIC PRINCIPLES FOR SPATIAL ORGANIZATION OF
EDUCATIONAL AND RECREATIONAL FARMS WITH ANIMALS
IN EUROPEAN CITIES

FUNKCJE I ZASADY ORGANIZACJI PRZESTRZENNEJ FARM EDUKACYJNO-
-REKREACYJNYCH ZE ZWIERZĘTAMI W MIASTACH EUROPEJSKICH

Abstract

A rapid development of technology, increasing urbanization, life in urban agglomerations as well as the degradation of the natural environment are constantly alienating humans from the world of plants and animals, depriving them of the possibility of using the therapeutic properties of nature. A specific antidote on the so-called "Nature Deficit Disorder" (NDD) in a big metropolis may turn out to be a city farm with animals, which, in addition to its main educational role, plays equally important functions: therapeutic, recreational and socio-cultural. The article presents the idea of such farms and analyzes various functions they perform in the structure of contemporary European cities. Their program and basic principles of spatial organization have also been characterized.

Keywords: city farm, educational farm, children farm, NDD – Nature Deficit Disorder, AAT – Animal-Assisted Therapy, AAE – Animal-Assisted Education

Streszczenie

Szybki rozwój techniki, postępująca urbanizacja, życie w środowiskach wielkomiejskich i degradacja środowiska naturalnego coraz bardziej oddalają współczesnego człowieka od świata roślin i zwierząt, pozbawiając go możliwości korzystania z terapeutycznych właściwości przyrody. Swoistym antidotum na tzw. Zespół Deficytu Natury w obrębie dużych miast może stać się farma miejska ze zwierzętami, która poza nadrzędną rolą edukacyjną pełni równie ważne funkcje terapeutyczne, rekreacyjne oraz społeczno-kulturowe. W artykule przedstawiona została idea takich założeń oraz przeanalizowane różnorodne funkcje, jakie pełnią one w strukturach współczesnych miast europejskich. Scharakteryzowano także ich program i podstawowe zasady organizacji przestrzennej.

Słowa kluczowe: farma miejska, farma edukacyjna, farma dziecięca, Zespół Deficytu Natury, AAT – terapia kontaktowa ze zwierzętami, AAE – edukacja wspomagana przez kontakt ze zwierzętami

1. Introduction – preface, objectives, methodology of work, scope of the article

1.1. Preface

A rapid development of technology, increasing urbanization, life in urban agglomerations as well as the degradation of the natural environment are steadily alienating humans from the world of plants and animals, depriving them of the therapeutic properties of nature [1]. Richard Louv [15], an American writer, essayist and journalist, coined the term *Nature Deficit Disorder* (NDD) to describe this phenomenon, having often negative consequences on human beings. In his book: *Last Child in the Woods: Saving our Children from Nature Deficit Disorder*, he argues, that much of modern human developmental dysfunction in the psychosomatic sphere may originate from a very limited or complete absence of humans' (especially children's) contact with nature. It is because the direct experience of nature has been replaced by an intermediary relation, easily accessible through media and electronics, but limited just to two senses: sight and hearing [15]. Prevention of the NDD may be implemented, among others, by alternative forms of outdoor education and lectures outside the classrooms, which not only help to reconstruct the lost contact with nature, but also allow to shape the appropriate sensitivity of people to their habitat. A specific antidote on the humans' alienation from the world of flora and fauna within the city metropolis, can become **city farm with animals which, in addition to its main educational role, plays equally important functions: therapeutic, recreational and socio-cultural.**

1.2. Objectives of work

The main objective of the article is to analyze diverse functions performed by educational and recreational urban farms with animals in the structure of contemporary European cities. It is also important to define a program of such farms and basic principles of their spatial organization, including opportunities and threats related to their functioning in urban areas.

1.3. Methodology of work

Analysis of the literature and online sources as well as case studies and on-site research of the city farms functioning in Europe.

1.4. Scope of the article

This article is dedicated to the city farms with animals that are set up in European cities for educational, therapeutic, social and entertainment purposes. The main criterion here is function – the discussed farms are not only a recreational mini-zoos, but they perform the above-mentioned functions with leading role of social and environmental education. The second criterion for selection is location – the analyzed farms are situated within the urban zone and form a separate unit, not being e.g. a part of a zoo.

2. Idea of educational city farms in Europe

Educational city farms are environmental and agricultural projects, intentionally established in urban areas, both in their central and peripheral zones. These are usually community initiatives, that involve people of all ages and from every social group into contact, integration, and work with animals and cultivation of plants. Their aim is to strengthen local social bonds and broadly understood environmental education, which builds awareness of the important role of agriculture and livestock in urban communities. City farms form a link between urban and rural life and make it easier for city dwellers to keep a relationship with livestock and food crops near their homes. For people who, for various reasons, cannot visit farms in the countryside, this is often the only opportunity to learn about livestock farming and the origin, usage and protection of different breeds, as well as food production, which enhances their ecological and consumer awareness. Farms are also places for meetings, recreation and therapy or daycare activities. They are a special form of integrative, interspecific spaces in cities, as well [9].

Local, organic products (e.g. eggs, milk, cheese, vegetables, fruits), natural cosmetics and bee products can be also purchased on farms. However, due to sanitary regulations related to animal husbandry in urban areas, which are excluded from agricultural production, city farms usually do not carry out large-scale production activities.

In different countries, these developments function under different names: **city farm** (*Urban Farm, Community Farm*), **educational farm** (*Granja Escuela, Ferme Pédagogique, Quinta Pedagógica, Fattorie Didattiche, 4H Gård*), **children farm** (*Jugendfarm, Kinderboerderij, Children's Farm, Youth Farm, Ferme d'Enfants*), **animation farm** (*Ferme d'Animation, Cascina di Animazione*) as well as **active playground** (*Aktivspielplatz, Abenteuerspielplatz*).

Most common animals on the city farms are so-called “livestock”, which according to the Polish law act¹ are, among others: equidae: horse (*Equus caballus*) and donkey (*Equus asinus*); domestic cattle (*Bos taurus*); poultry – birds of the species: hen (*Gallus gallus*), duck (*Anis platyrhynchos*), goose (*Anser platyrhynchos*) and turkey (*Meleagris gallopavo*); pigs (*Sus scrofa*), sheep (*Ovis aries*), goats (*Capra hircus*), honey bees (*Apis mellifera*); fur animals: chinchillas (*Chinchilla lanigera*) and rabbits (*Oryctolagus cuniculus*) [26]. On farms, there are also often present: ponies (e.g. Shetland), pigs of small breeds, hamsters and guinea pigs, ornamental poultry (e.g. guinea fowls, quails) as well as alpacas (*Vicugna pacos*) and llamas (*Lama glama*).

Although the history of educational farms in Europe dates back to the beginning of the twentieth century, their dynamic development started as late as in the 1960s. After World War II many European countries entered the road of intensive development and urbanization. This resulted in the rapid growth in the number of city inhabitants² and reduction of the

¹ Ustawa z dnia 29 czerwca o organizacji hodowli i rozrodzie zwierząt gospodarskich (Dz.U. 2007, Nr 133, poz. 921 z późn. zm.), art. 2, ust. 1, pkt 1 [26].

² In 2015, the average urbanization rate for Europe grew to 73% (<http://www.statista.com/statistics/270860/urbanization-by-continent/>).

agricultural sector. These changes have contributed to the stretching of the gap between humans and nature, environment and animals. A number of government programs were launched in the 1960s to bring residents of rapidly expanding cities (especially children and youth) closer to nature, as well as to farm life and livestock. At the same time, informal movement of the creation of city farms began simultaneously in many European countries [27]. The first city farms in which school's curricula were implemented were established in the Scandinavian countries of **Norway, Sweden and Denmark**. The main inspiration for that idea was **4H youth movement**³, which was founded in the United States in 1914. 4H is short for four English words: head, heart, hands, health – understood as: open head, hot heart, skilful hands and good health. In Scandinavian countries, city farms are affiliated with organizations that act as part of 4H clubs. In Norway, it is **4H-gård Norge** (since 1995)⁴ and in Sweden **Riksförbundet Sveriges 4H**⁵.

In Germany, the idea of city farms is closely linked with the concept of active or adventure playgrounds (*Aktivspielplatz, Abenteuerspielplatz*). In the 1960s the German government introduced the program **“Aktivspielplätze”** (Active Playgrounds). The first German farm – Jugendfarm Elsental was founded in the 1960s in Stuttgart. At the same time, first adventurous park in Berlin was opened, and in 1972 the German Federation **Bund der Jugendfarmen und Aktivspielplätze e.V** was founded, as well⁶.

At the same time, as in Germany also **in the Netherlands**, in cooperation with the Ministry of Agriculture the project **“City farm”** was launched. **The Vereniging Samenwerkende Kinderboerderijen Nederland (vSKBN)** was established in 1988 and now associates more than 300 city farms⁷.

In the 1970s, the movement of educational farms reached also **Belgium**, a country where the urbanization rate increased to 98%⁸. In the 1980s, two organizations supporting farming activities were founded: **Federatie Kinder-, Jeugd- en Gezinsboerderijen**⁹ in the Dutch-speaking Flemish region and **Fédération Belge Francophone des Fermes d'Animation**¹⁰ in Wallonia – the French-speaking part of Belgium.

The first **British** educational farm – Kentish Town, was established in London in 1972. Also, the first community gardens and farms linking animal husbandry with plant cultivation were organized in the UK. In the United Kingdom, city farms have also become one of the ways of the revaluation of undeveloped urban areas. Established in 1980, the **Federation of City Farms and Community Gardens (FCFCG)** joined now more than 150 city and school farms and over 1000 community and allotment gardens¹¹.

³ <http://4-h.org/>.

⁴ www.4h.no.

⁵ www.4H.se.

⁶ www.bджа.org.

⁷ www.kinderboerderijen.nl.

⁸ <https://esa.un.org/unpd/wup/Publications/Files/WUP2014-Highlights.pdf>.

⁹ www.kinderboerderijen.com.

¹⁰ www.fermedanimation.be.

¹¹ www.farmgarden.org.uk.

In the 90s of the twentieth century, the idea of educational farms reached the Mediterranean basin, among others Italy. However, in some European countries, such as Italy, France, Switzerland, Austria, as well as Poland, these developments are most often located in rural areas – and thus go beyond the scope of this article.

As a result of joint meetings of delegates from various European countries, **the European Federation of City Farms (EFCF)**¹², was established in 1990 as a part of the European Environmental Bureau (EEB). The main aim of the EFCF is: “Promoting the interests and mutual co-operation of Kinderboerderijen, Jeugdboerderijen, Gezinsboerderijen, Fermes d’Enfants, Fermes d’Animation, Jugendfarmen, Aktivspielplätze, City Farms, 4H-Farms and similar organizations that actively promote the equal access and involvement of children, young people and adults through practical experience in a wide range of educational, environmental, recreational, social and economic activities focused around farming, empowering people to improve their own lives and environment in peaceful co-existence” [4].

3. Functions performed by city farms

city farms with animals can perform a variety of functions. Their main task is the **social and environmental education of the youngest**. The urban farm is a source of knowledge about farm animals, their habits, needs and ways of care. This is an alternative place of education, in which the curriculum is oriented primarily on practical work and workshop exercises. Under the supervision of the tutor, children have the opportunity to actively participate in the feeding and care of animals raised there (Fig. 1). Through the contact with animals (animal-assisted therapy) and gardening (horticultural therapy) urban farms also perform **therapeutic functions**. Farms are also often desirable green enclaves and **recreation areas** for children and adults, which provide a viable alternative to the sedentary lifestyle of many urban dwellers, thanks to their various leisure activities [30]. As places of integration and activation of local communities, they also have important **social functions**. City farms are often the places where **rare and native breeds of domestic animals are preserved**.

In the large cities, farmland areas are an **important link in the green infrastructure network**. They are also a way of the development of the wastelands or areas which, due to their unfavorable location, are not suitable for the other functions such as housing or public services. City farms also play an important role in the shaping of the sustainable development in European cities by promoting an eco-friendly and active lifestyle, healthy nutrition, local products, building a consumer awareness, promoting renewable energies, recycling, ecological farming and animal husbandry considering animal welfare principles [5].

¹² On the federation’s website: www.cityfarms.org there are many valuable articles, presentations and educational materials, brochures, leaflets and good practice catalogs from all over Europe. Every year, scientific conferences devoted to the city farms are held in one of the Member States, as well.

a)



b)



Fig. 1. Direct contact with animals is one of the tangible benefits of visiting a city farm: a) Children during riding lessons at the Vienna Kids Farm in Vienna, Austria; b) Children scour the sheep at the Vienna Kids Farm, Austria (photos by the author, 2015)

a)



b)



Fig. 2. The most popular animals on city farms are sheep and goats: a) Male goat on the run at the Vienna Kids Farm in Vienna, Austria; b) Sheep waiting for feeding – Vienna Kids Farm in Vienna, Austria (photos by author, 2015)

3.1. Educational function

The main function of the city farms is **social and environmental education**, which is one of the most important areas of the integrated teaching of preschool and school children. Its main purpose is to educate pupils' cognitive abilities, to familiarize them with the life of nature and to raise their sensitivity to it, as well as to trigger, inspire and maintain a sense of respect for life in all its forms, including the attainment of self-care and own security [1]. It is also a conscious shaping of ecological attitudes and instilling knowledge about the importance of sustainable development to improve the quality of people's lives [9]. Animal husbandry plays a very important role in this process. Animals associate man in cities from the very beginning and their vital role in human daily life is well known and undisputed [10, 11]. On the farm children should have the opportunity not only to observe the animals and follow their

growth, but also to get to know their species name, appearance, structure and lifestyle, the rules of behavior towards them, their useful role for the human being and the environment and finally, be able to stroke, feed and cherish them. It is also important to develop a positive and caring attitude towards animals and to learn how to observe and play with them, without tormenting or scaring [1]. On urban farms, various curricula for pre-school and school groups are organized. The selection of topics related to the animal husbandry is broad. These can be, for example, programs to educate the origin of food based on specific products, such as: “milk path”, “egg path”, “path of meat” or “honey path”, as well as “wool path” – presenting the process of wool origin and ways of using it or “bee path” – teaching about the functioning of the bee family [12]. Education is often done with help of sheep or goats, which are considered to be one of the most multifunctional animals in this regard [27] (Fig. 2).

3.2. Therapeutic function

Another very important role performed by urban farms is the **therapeutic function**. Along with the development of knowledge about the therapeutic role of animals in human life, there has also been an increase in the number of corrective and therapeutic programs directed primarily to children and youth, known as **Animal-Assisted Intervention (AAI)**. Animal therapy is now recognized as a natural method of supportive treatment, rehabilitation and resocialization, based on the direct contact with animals. Numerous studies have confirmed the positive impact of this method on the wellbeing of older people, as well [16].

AAI provide motivational, educational and/or therapeutic benefits. It can be run in different environments by trained professionals and/or volunteers, involving animals that meet certain criteria. There are various forms of animal therapy that can be realized with help of animals such as: dogs (kynotherapy), horses (hippotherapy), cats (felinotherapy), donkeys (onotherapy), alpacas (alpacotherapy) or bees (apitherapy). Pet Partners, a UK-based organization, has distinguished three main types of the AAI: **Animal-Assisted Activities (AAA)**, **Animal-Assisted Therapy (AAT)** and **Animal-Assisted Education (AAE)**¹³. All these methods – of course to varying degrees and extent – can be implemented on the urban farms. Some of the farms are even developed as specialist therapeutic or therapeutic-residential units, such as centers of hippotherapy, kynotherapy or alpacotherapy, where professional rehabilitation and sometimes resocialization programs are implemented. However, due to the extensive program and big land demand, most of such centers are located in suburban and rural areas and will therefore not be discussed in detail in this paper.

On a typical urban farm, the therapeutic function is primarily based on contact with animals and the measurable beneficial effect they have on the human body, both in the physical and mental sphere, additionally performing educational and motivational functions [2, 7]. City farms may also offer support to physically and intellectually disabled people by engaging them in farming activities involving cultivation or animal husbandry. For example, autistic persons, endowed with specific receptivity to reality, feel and function better in the

¹³ <https://petpartners.org/learn/terminology/>.

farm environment – closer to nature. On the farm, there are also opportunities for work which is more understandable and satisfying for people with disabilities than in case of typical occupational therapy [13].

3.3. Recreational and socio-cultural functions

Other important roles performed by the urban farm are **recreational and socio-cultural functions**. A farm, located in cities' central or suburban areas, is often a popular resting place for local communities. Activities offered on farms can become an antidote to the NDD and related civilization diseases. The farm area is a place to locate children's playgrounds, picnic areas and even sports grounds. Various events are organized there: birthdays, bonfires, festivities that build and strengthen social bonds, enabling the integration of people of all ages, from different social and cultural groups [17]. Daily stay on a farm is also one of the least expensive forms of recreation for the whole family, comparing costs to other urban entertainments such as: cinema, theater or café [28].

The function of “learning by play” is particularly present in the farms developed in Germany, where so-called “active playgrounds” (*Aktivspielplätze*) provide active recreation for children of different age groups. They aim to develop autonomy and creativity in children and youth as well as to build their ecological awareness and social abilities¹⁴.

The urban farms are often a unique green oasis in the city, providing the possibility of direct contact with nature and animals – even wild. Being in line with the trend of sustainable urban development, they provide the opportunity to recreate the lost links between the urban and rural environment, becoming an important part of the green infrastructure system, as well.

3.4. City farms as places for rare and local breeds' protection and survival

Urban farms also function as places for keeping rare, native animal breeds. Old livestock breeds, created over the centuries by humans in adaptation to local environmental conditions, are an important part of the cultural heritage of a given region. However, the future of many domestic animal breeds is becoming increasingly endangered, due to their lower economic efficiency and changes in agricultural production methods. Therefore, it is important to protect them from extinction. One of the popular forms is protection *in situ*, which is based on the typical ways of usage of protected populations [14]. **The British Rare Breeds Survival Trust (RBST)**¹⁵, recognizes educational urban farms as an ideal place to secure the future of rare and indigenous breeds of farm animals [27]. An additional advantage is the possibility of using them in the education of visitors. Some of them, e.g. the German Schleswig horse, also have some special character traits, which designate them to therapeutic work with disabled people [29]. However, the most important to ensure the sustainability of rare, local breeds is

¹⁴ http://www.bdja.org/files/bdja_englisch.pdf.

¹⁵ www.rbst.org.uk.

the promotion of products derived from them [14]. This goal can be successfully implemented on a farm, where it is possible to sell and popularize locally produced food products such as milk, cheese, eggs, honey and meat.

4. Basic principles of the spatial organization of city farms¹⁶

City farms with animals in Europe are usually located in urban core areas, peripheral residential zones or in suburbs. The plots selected for the farms are often wastelands, taken over or leased from the city by local communities or foundations. Farms are also created in areas which, due to unfavorable conditions, such as the proximity of busy traffic arteries, railways, airports or other noise sources, are not suitable for other functions. They are also built on former rural farmland sites that operated on land gradually absorbed by the expanding cities.

The size of European urban farms is very different – from small ones: up to 0.5 hectares, medium: 1-5 hectares, to large: over 5 ha¹⁷. The research shows that the optimal size, where all program components of the farm are possible to organize is the area of ~ 2 ha [6].

Regardless of the size or location of an urban farm, its development should include designated areas and adequately equipped buildings and facilities (Fig. 3). One entrance/exit from the farm area is recommended for safety and hygiene purposes. Most of the farms have a multifunctional main building, which houses educational activities, livestock buildings, animal runs and gardens: ornamental, vegetable and/or orchard. Playgrounds for children are also located on the farms and, in the absence of space, even their standard equipment such as sandpits or climbing ropes.

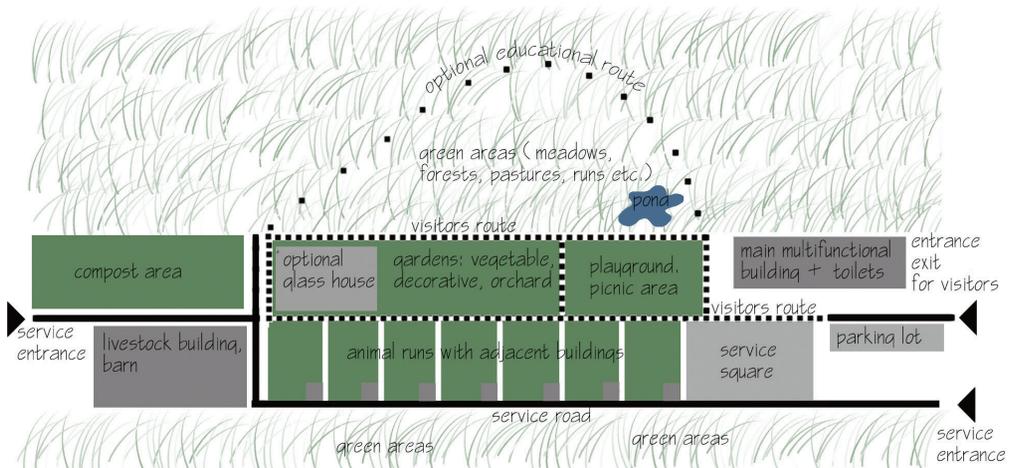


Fig. 3. Scheme illustrating spatial organization of functions in a city farm, according to the basic requirements and principles (drawing by the author, 2017)

¹⁶ This chapter is compiled on the basis of code of practice: *Preventing or controlling ill health from animal contact at visitor attractions* [18] and case studies.

¹⁷ One of the biggest urban farms in Europe is Mudchute Park and Farm located in London, with area of 13 hectares (mudchute.org).

Many farms also have a cafe or picnic area as well as a shop with their own products, sweets and ice cream. If there are horses on the farm, the development also includes outdoor or indoor riding halls and round pens. On bigger farms, the amount of green areas is most often increased by including pastures for animals, meadows or even forests.

The main criterion for the placement of particular functions on the farm is to prevent potential hazards. The most serious of them is the **risk of infecting visitors with zoonoses** [8], which can occur during direct contact with animals, their feces or raw materials of animal origin. Another threat is **potential pollution of land, surface water and groundwater** due to improper storage of animal feeds, waste, and excrement. The problem may also be the **potential nuisance of the farm for neighboring properties through generated noise or odors**.

Preventing these threats requires from the farm owners to fulfill certain sanitary, epidemiological and veterinary regulations, including: hygienic practices, animal testing and maintenance of cleanliness and order on farms and livestock buildings, proper storage of feed and storage of animal manure for agricultural use as well as a regular disposal of faeces and residues of feed or litter left on premises for shared use. Visitors are required to comply with the rules of personal hygiene (especially hand washing) and to follow the applicable regulations of the farm¹⁸.

4.1. Zoning, communication routes, information and signage

Appropriate zoning is very important to ensure visitors' safety and to avoid functional collisions on the farm premises. First of all, it is necessary to designate the zones accessible for visitors, available for them under certain conditions (dictated for example by means of proper hygiene) and inaccessible ones, as well as zones of contact with animals and where such contact will not be possible. Access to places open for visitors should be convenient, and pedestrian paths together with communication routes should be free from pollution and properly marked [12]. Zones with direct contact with animals must be kept clean – free from feces and other impurities. In these zones eating, drinking and smoking should be prohibited. Visitors should not have unlimited access to livestock buildings and animal pens and runs, due to the increased risk of zoonotic infections through contact with excrements and bedding. Visitors may only have access to specially designed and regularly disinfected pens and enclosures.

The lower parts of animal fencing should be solid to protect the area just before them from uncontrolled leakage of liquid dirt. To contact with visitors should be directed only animals that are completely healthy and free from injuries. There should be no newly born animals in the contact zones as well as those that have recently given birth. Contact with animals should always be carried out under the supervision of workers. This is not only to ensure visitor safety, but also to protect the animals staying there.

¹⁸ In order to ensure the health and safety of urban farms' visitors in the United Kingdom, a code of practice has been developed, titled: *Preventing or controlling ill health from animal contact at visitor attractions* [18]. It contains a set of practical guidelines for the prevention and control of zoonoses in places where direct contact between humans and animals occurs. This Code of practice, updated on a regular basis, can be downloaded from the Farming & Countryside Education website (FACE) (www.face-online.org.uk).

Sanitary facilities and recreational, play and picnic places should be located only in areas where contact with animals is not possible. The area of urban farms should be organized in a way that facilitates mobility, independent sightseeing and additional activities of visitors. Selected objects, crops or places for animals should be marked with informational boards that contain both text and appropriate graphics.

In larger farms, it is possible to propose the combination of selected zones and elements of development into a form of didactic path. As a form of attraction for such paths can serve devices for independent experiments [12]. Trails for the visitors should not cross the service roads used by animals and the vehicles or machinery used on the farm. If this is not possible, these trails should be kept clean – free from animal waste, liquid leaks or litter. In places where the surface of the pavement is often contaminated, it is recommended to install wooden platforms called *duckboards*. Walking routes should be traced so that visitors do not have access to the farm's service areas, waste disposal, manure or fertilizer sites. These zones should be additionally secured with fences and appropriate information boards prohibiting entry.

4.2. Buildings, premises and spaces for animals and their management

The biggest attraction of educational urban farms are the animals. They serve not only for the entertainment of visitors, but, above all, they play important therapeutic and educational roles. It is therefore important to provide them with proper care and adequate living conditions, taking into account the standards, depending on their maintenance systems, species, age and physiological state (Fig. 4). Basic principles of livestock welfare, known as the Five Freedoms, have been developed by the UK's Farm Animals Welfare Council and are included in the Codes for the Welfare of Livestock [3]¹⁹. According to the Code, livestock



Fig. 4. On urban farms, animals are often kept in small wooden buildings with fenced enclosures: a) A farmhouse and a run for turkeys at the Landgut Wien Coblenz farm, Vienna, Austria; b) A shed and run with a pond for geese at the Vienna Kids Farm in Vienna, Austria (photos by the author, 2015)

¹⁹ The basic legislative act is Council Directive 98/58/EC of 20 July 1998 on the protection of animals kept for farming purposes (31998L0058) [3].

should be free from: hunger and thirst, discomfort, pain, injury and disease, fear and stress and free to express a normal set of behaviors.

Consequently, decisive for animals' welfare on the urban farm are, among others: living area per animal (area of the pen, pit, cage, runway), freedom of movement, type of floor (litter, litter-free), adjustment of building equipment to their needs, microclimatic conditions and ventilation efficiency.

In addition, to meet the conditions of animal welfare, animals should be kept on the farm in a manner that does not impair the health of humans and does not pollute the air, soil and water, which is provided through the fulfillment of sanitary, veterinary, construction, environmental protection and animal protection rules as defined by the law²⁰. The farm should also provide: feed storage area, manure collection space and fertilizers, including compost storage. These premises should be located far away from visitors' open areas, preferably where there is a minimal risk of getting any contaminants.

4.3. Organization and arrangement of the educational space

As already mentioned, the supreme function of the urban farm with animals is education. It is therefore essential to provide adequate educational infrastructure on its territory. In practice, all available places in urban farms can be used for teaching activities – from farm buildings and barns through animal pens, farmyards, playgrounds, gardens: orchard and vegetable ones, to appropriately designed objects and spaces. The organization and equipment of educational space are determined by, among others, characteristics of the target groups and diversification of the didactic program on the farm. Even if education is based primarily on the outdoor activities, the farm should be equipped with a roofed space which will allow education even under unfavorable weather conditions. For this purpose, can serve adapted part of the farm building e.g. barn, a roofing or a specially designed building with classrooms. The basic equipment of such rooms is places to seat, tables, writing boards, books, models and other teaching aids [12].

Buildings for teaching and workshop purposes, oftentimes equipped with food and beverage facilities, can also become a meeting place for local communities.

4.4. Playing area and picnic zone

Both the picnic area and playground are places in which there should be no direct contact with animals (Fig. 5a). In order not to provoke any attempts to contact, it is recommended to separate those zones from the animal pens with the doubled fencing with distance (Fig. 5b).

²⁰ In Poland this is regulated by the law Acts: on the protection of animals [25], on the organization of breeding and reproduction of livestock [26], on the protection of animal health and the control of infectious diseases of animals [23] and Regulations: on the minimum living conditions of particular species of livestock [19], on the requirements and behavior of keeping livestock species, for which protection standards have been defined in European Union legislation [20] and other than those for which protection standards have been laid down in EU legislation [21].

Picnic places should be located far away from the main service and walking routes. Sanitary facilities should be provided at a short distance from the entrance to the picnic area and, by means of appropriate signage, remind of the need to wash hands before a meal.

Kiosk with sweets and ice cream should be located in the zone without contact with animals, preferably in the vicinity of the entrance to the farm.

The play area should foster children's imagination and creativity while ensuring the safety [12]. Playground equipment may vary and depend largely on farm size and its spatial organization. However, it should be designed and constructed so that it can be easy to clean in order to remove any possible contamination. As in the case of a picnic area, users should have an opportunity to use the nearby wash basins and sanitation facilities both before and after the end of their stay in the playground. Also, fields used as pastures can be utilized as playgrounds and/or picnic areas. However, it is recommended to have a 3-week interval since the last grazing. The grass should be mown and intensely maintained, and any mowing residue should be harvested.

a)



b)



Fig. 5. Picnic area and playground are important elements of urban farm development: a) Picnic place under the canopy prepared for a birthday party at the Vienna Kids Farm in Vienna, Austria; b) Double fence at the run for white donkeys, Landesgartenschau 2016 in Bayreuth, Germany (photos by the author, 2015 and 2016)

4.5. Sanitary facilities

Very important for the proper functioning of the urban farm is the provision of appropriately located and equipped sanitary facilities. The best solution is to create separate toilets for women and men, with their quantity adjusted to the number of visitors. It is also recommended to adapt common sanitary rooms to the needs of children by providing them with footstools and small toilet seats [12]. Sanitary units should be located at the entrance/exit from the farm or directly adjacent to the zones of direct contact with animals. They should also be located as close as possible to the play and picnic areas. Near the exit from the farm, a place to clean shoes, wheelchairs and baby carriages can be also provided.

5. Summary

Contemporary educational and recreational city farms with animals in Europe vary widely in terms of their location, area, spatial development, activities as well as management or funding.

Farms can be visited as part of a multi-hour individual, group or school trips, one-day or overnight stay, family and group programs, as well as weekly workshops. Farms can also be visited repeatedly throughout the year by the same group of pupils with longer school programs.

Some urban farms employ paid workers, but most rely on volunteer work. Some of them work in partnership with local authorities, some are run by private foundations or associations, others operate at therapeutic centers, psychiatric clinics, schools or orphanages.

The spatial-functional program of the farm is also varied and depends mainly on the area occupied by it. The biggest attraction of urban farms are the animals, so they are usually mostly exposed and livestock buildings and farmsteads are the main elements of their development. The most common are farm animals, including poultry – chickens, ducks and often goose and turkey, sheep and goats, horses and donkeys as well as rabbits, cows and pigs. Farms also often maintain house pets as: dogs, cats and guinea pigs, hamsters, ferrets, chinchillas and rats. On urban farms are also located facilities for educational purposes, playgrounds for children, utilitarian and ornamental gardens, and in larger farms also orchards, meadows and pastures for animals as well as water reservoirs.

There is a number of risks and threats associated with the functioning and development of animal farms in urban areas. The most serious include: potential zoonoses, potential ground, surface and groundwater contamination, potential nuisances for neighboring properties, extensive hygienic and sanitary regulations and excessive hygiene practices among parents, lack of funds to run and maintain the farms against rising costs of land plots together with investment pressure on areas occupied by farms [5].

Despite many unfavorable factors, the future of educational farms looks bright. They perform very important functions: educational, recreational, therapeutic and socio-cultural. They are also a form of protection for traditional, native breeds of farm animals. Farms are also part of the green infrastructure network and serve as integrative, interspecific spaces in the cities [9].

Location of farms in urban wastelands and uninhabitable areas can be a guarantee of their continued use and will provide the opportunity for more sustainable and better-quality investment in their development and architecture.

The European Federation of City Farms (EFCE) and similar organizations associating urban farms in different European countries provide a platform for exchanging experiences and good practices, giving chances and opportunities for their future development.

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