

# The economics of the scattered green restoration in cultural landscape

## *Ekonomika obnovy rozptýlené zeleně v kulturní krajině*

H. SOUČKOVÁ

*Research Institute of Agricultural Economics, Prague, Czech Republic*

**Abstract:** In this contribution, several findings from the solution of the research project QC 0266 have been summarised in a synthetic form. The project is called “Adaptation of Vegetable Growing, Fruit Growing and Flower Growing to the EU Common Market” and it deals in detail with the basic indices evolution within ornamental gardening. The aim of the output was to get data for quality incidences of the Ministry of Agriculture environmental policies and for a higher representation of the territorial systems of the ecological stability realisations in the cultural landscape of the Czech Republic.

**Key words:** scattered green, cultural landscape, financing plantings of greenery in the landscape

**Abstrakt:** V příspěvku jsou shrnuty v syntetické podobě některé poznatky z řešení výzkumného projektu QC 0266 “Přizpůsobení zelinářství, ovocnářství a květinářství jednotnému trhu EU”, který se podrobně věnuje vývoji základních ukazatelů v okrasném zahradnictví. Cílem výstupu bylo získat podklady pro kvalitní dopady environmentální politiky Ministerstva zemědělství a pro vyšší zastoupení realizací územních systémů ekologické stability v kulturní krajině České republiky.

**Klíčová slova:** rozptýlená zeleň, kulturní krajina, financování výsadeb zeleně v krajině

## INTRODUCTION

The conception of the agricultural policy of the Czech Republic is in accordance with the European model of agriculture, and one of this policy pillars has been concentrated on the development of the multifunctional agriculture, i.e. agriculture which is aimed not only at the agricultural production, but also to safeguard the services of the maintenance of landscape, it is aimed at landscaping programmes and at other environmental services.

To substantiate the financing of landscaping programmes from the means of the state budget or from the means of the European Union pre-accession funds, it is necessary to know the results of investigation in the field of financing and realisation of the environmental programmes.

## LITERARY OVERVIEW AND METHODOLOGY

Weber and Jech (1995) deal with the analysis of the perennial vegetation in the backgrounds of the settlements of the provincial type. The original principle of the system of perennial greenery is based on the model of a multifunctional countryside, where often antagonistic interests of various subjects are encountered. The theory of the system of perennial vegetation (perennial

greenery) is based on long-term experience of the Research Institute of Ornamental Gardening in Průhonice, especially in the sphere of the scattered greenery in the landscape. The mentioned system was worked out on the scale of a large territorial unit. The formulation of principles, principles of the composition of individual sections and the types of interventions, including the principles of the species composition determination, are contained in the synthetic stage called “The Proposal of the System of Perennial Greenery within the Mělník District”.

The system of perennial greenery is defined here as follows: “The system formed by both economic and non-economic vegetation of perennial character (forests, permanent grassland, i.e. meadows and pastures, and special agricultural cultures as vineyards, hop-fields, orchards, poly-annual fodder plants on arable land and dispersed greenery), which is bound together through forward and backward links that may be material, energetic and informational”. The final part, which is devoted to the specification of the material system of the perennial greenery within the Mělník District, was worked out in 1989–1991, and it shows the working procedures of balancing the time, financial and material and technological demands on the creation and maintenance of the system of perennial greenery. The experience of the formed stages has been summarised in the methodological instruction “Planning of the System of Perennial Greenery in a Large Territorial Unit”.

The authors Jech and Weber (1995) have worked out the method of inventory of the scattered greenery, its attaching to the geographical informational systems and its exploitation for the following projects and management of the landscape. A database was created, storing the information about the actual state of the scattered greenery. This information was gathered above all by the means of territorial investigation and also from other accessible data. The analysis itself was aimed above all at the elements of perennial greenery regarding the quantity, quality, allocation, space and functional structure, and at the connected biological, social and economic characteristics. In the graphic part, the authors created a system of levels for an easy-to-survey organisation. The levels enable to create new spheres containing new elements with the following thematic blocs: levels 0–9 scattered greenery, levels 10–19 turfs, levels 20–29 forests and waters, levels 30–39 legislative boundaries, levels 40–49 text and data information, levels 50–59 botanical evaluation, levels 60–69 zoological evaluation. In level 1 (scattered green of low value), there are solitaires, solitary groups, regularly arranged lines with both fruit and non-fruit species, irregularly arranged lines, and scattered greenery. In level 2, there is included scattered greenery of medium orchard value, with the graphic differentiation corresponding to level 1. In the third level, there are included the most precious growths and solitaires of the third orchard value, with the graphic differentiation corresponding to levels 1 and 2. Weber et al. (1995) worked out the principles of creating the identical picture of a formation of settlement and that of landscape units in three model territories. In 1997, Weber et al. (1995) concentrated on a project of integrating the landscape planning into the process of complex territorial arrangements. The above-mentioned integration seems to be the most effective way to protect natural resources in the landscape, safeguarding the complex protection and development of biotic, abiotic and aesthetic resources.

The findings achieved since 1987 in the sphere of poly-functional system of perennial greenery were summarised by Jech (1997). The contribution includes the survey of theoretical and methodical outputs, the informational phase description (information about the wider territory of interest, information about the territory of solution, gathering of elaborated data, terrain exploration), analytical phase description (sorting, evaluation and processing of information), the synthetic phase (elaborating of partial suggestions of function subsystems in the ideal form, optimisation, elaboration of the system of perennial greenery) and the completion phase description (processing of the resulting project into the form of graphic and text outputs), the project description on local scale, and the survey of subsystems of individual functions (biological, ameliorative, isolating, sanitation, cultural, aesthetic, instructive, recreational and productive functions).

When framing the species composition of home wood-plants for individual stands within the projects of landscape planning and landscape revitalisation, the

phytocenological, system of plant communities of the Czech Republic has been preferred, as far as Dostálek (1997) mentions.

According to the geo-botanical classification of the vegetation in the Czech Republic, 12 basic vegetative units (types) have been found, in which wood plants with a link to certain stands prevail. According to the stand type and its situation, it is then possible in reverse to choose a suitable composition of autochthonic wood-plants.

In the Research Institute of Ornamental Gardening in Průhonice, systems have been worked out how to organise a functional employment of the space of settlement, i.e. how to organise planning of the greenery in the settlements and that of living areas including industrial zones. The landscape as a whole was often left behind.

One of the factors which can contribute to the reducing of landscape devastation is the regenerative capacity of nature, as Neméth (1997) states. He perceives the need to intensify the planning of the landscape as a whole and to accentuate the ecological context of activities in the landscape with the possibility of a larger use of vegetation.

Bulíř et al. (1992) deal with balancing the project of the system of perennial greenery. The authors state that projects of perennial greenery system from the economic point of view have been elaborated either in a very marginal manner, or not at all.

The problematics of economics, organisation and management of work connected with the planning of greenery is a theme that has been neglected even in literature. Some partial pieces of recognition can be gathered from the works of Mareček (1975), Bouček et al. (1976) and Bulíř (1984, 1988). Investigation about financial costs connected with establishing the Territorial Systems of Environmental Stability (hereinafter ŮSES) was elaborated in the form of public inquiry in 1999–2000, and inquiries were made within the Czech Republic. Both proposals of gardening firms regarding budgets for restoration of scattered greenery in territorial systems of environmental stability, and realised projects of the scattered greenery restoration in the landscape were pursued.

## RESULTS AND DISCUSSION

A sufficient quantity of nursery – grown young plants in Czech nurseries are the precondition for the restoration of perennial greenery. The nursery production in the period of the pre-war Czechoslovakia was, it must be admitted, scattered into many smaller establishments, but it was incorporated into the European trade structures and the Czech nursery system was counted among the best developed in the pre-war Europe. In 1995, in total 104 organisations were involved in production of nursery output in the Czech Republic, and they produced nursery goods on 517 hectares of growing areas. In this year, 912 workers were involved in production of ornamental nursery products, and the total production vo-

Table 1. Ornamental nursery in 1976 to 2000

Index	1976	1981	1986	1993	1995	1996	1997	2000
Number of organizations	117	114	123	96	104	118	138	154
Number of employees	954	1094	1134	960	912	968	1 029	1 025
Acreage in ha	645	755	734	410	517	541	626	695
Volume of earnings in mil. CZK	124	167	157	150	197	223	281	358

Source: Pinc M., Obdržálek J.: Union of Nurserymen of the Czech Republic

Table 2. Essential data about the production basis for nursery products output in the Czech Republic, divided according to district

District	Number of organizations	Number of employees	Total acreage in ha	The area covered with nursery plants	The acreage for production of wood-plants in containers in ha
Prague	8	49.0	59.1	29.9	2.0
Middle Bohemia	26	225.0	342.8	167.1	25.8
West Bohemia	11	48.0	56.9	41.9	7.6
South Bohemia	15	99.4	99.4	66.6	8.1
North Bohemia	14	57.5	55.1	37.0	9.6
East Bohemia	11	211.0	234.0	178.8	15.4
South Moravia	25	142.9	95.1	71.8	34.3
North Moravia	44	192.1	142.7	101.9	20.4
Total	154	1 024.9	1 085.1	695.0	123.2

Source: Pinc M., Obdržálek J.: Union of Nurserymen of the Czech Republic

lume reached 197 million CZK. In 1995, in total 3.15 million pieces of shedding and evergreen shrubs were produced, 0.46 million pieces of leafy trees, 0.18 million pieces of creeping, rambling and trailing wood-plants, 0.43 million pieces of heather plants (*Ericaceae*), 1.95 million pieces of needle trees, 0.51 million pieces of roses and 0.81 million pieces of perennials and rock plants.

In spite of the growing trend of nursery output production, the actual amount of nursery production is insufficient. In 1996, the total amount of import reached 95.2 million CZK while the amount of export only reached 26.1 million CZK. As stated in more details in the Tables 1 and 2, the nursery production in the Czech Republic has raised from the bottom since 1993, and from the economic point of view, it is a stabilising element within the non-food use of agricultural land. In accordance with the Act No. 114/92, Coll. about the protection of nature and landscape, home (autochthon) species have been planted into the cultural landscape. The survey of home wood-plants, with which nursery firms work during realisation of territorial systems of ecological stability, i.e. bio-centres and bio-corridors, is shown in the annex. The success in restoration of scattered greenery in the cultural landscape is given not only by the suitable choice of home wood-plants, but especially by the choice of suitable species for the optimal stand conditions.

Elaboration of the bonity system of agricultural soils, represented by the Main Soil Unit (hereinafter HPJ), into the choice of trees and shrubs, dominant, admixed and scattered wood-plants was done in the Research Institute of Agricultural Economics (VÚZE) final thesis, Součková (1998).

#### ECONOMICS AND FINANCING OF THE SYSTEMS OF PERENNIAL GREENERY

For financial budgets of the territorial systems of environmental stability, the price calculations regarding realisation of the projected bio-corridors and bio-centres are the starting point. Investigation of costs was done within nurseries and gardening firms from the Middle and North Bohemia in the years 1999–2000. The smallest width for a bio-corridor, for instance along waterways, is considered to be 15 m. In the case of bio-centres, square areas are considered, and the normative calculation is set per 1 hectare of the realised area. The medium price of founding 1 hectare of bio-centre or that of bio-corridor reaches from 150 to 500 thousand CZK (the prices are that of the year 1999). A lower financial amount (up to 150 000 CZK) is needed to found a bio-centre, when only a meadow growth of flowering meadows is considered. If

bio-corridors or bio-centres with a shrub belt and high greenery are founded, financial expenses for the foundation are about 500 000 per 1 hectare. The price level depends on the quality of the planting material. Lower expenses are reached when planting cuttings and higher expenses are for the bio-centres, where trees with root balls are planted.

Financial contributions granted for territorial systems of environmental stability should be tied to the control of the greenery care in the second and third year after plantation.

## **FINANCING THE SCATTERED GREENERY IN THE LANDSCAPE**

You may know best the trends of landscaping theories, you may know best how to assess the water conditions in the countryside, you may have the aesthetic feeling and creative sense for the location of scattered greenery in the landscape – all this is but of a little advantage to you if you do not possess the financial means for realisation of the territorial systems of environmental stability.

As regards agriculture, one has first remember the disastrous landscape activities of the past era – the often negative effects of plots connecting, the impact of intensification on soil erosion, unsuited amelioration projects connected with land draining, straightening of water flows. On the other hand, it is not possible to damn every effort connected with amelioration, improving soil quality and fertility.

It is necessary to mention the individual programmes of the Support and Guarantee Farm and Forestry Fund (PGRLF) and their effects onto the landscape. For creating the Czech landscape, there could especially be utilised the programme ZEMĚDĚLEC (Farmer), aimed at supporting the access to credits for environmental investments, erosion prevention measures, protection of soil against pollution by infiltration. Subsidies according to governmental decree (No. 344/1999 Coll. and No. 505/2000 Coll.) are introduced to establishing of territorial system of ecological stability and dredging ponds, forestation and establishing fast growing wood species and grassing. It is necessary to stress the importance of the benefits from the Support and Guarantee Farm and Forestry Fund programmes with those agricultural subjects, whose incomes from the agricultural primary production and/or from forestry activities form more than 50% of the total income.

It also has to be emphasised that the applicant for any type of benefit from the Support and Guarantee Farm and Forestry Fund, fulfilling other legal obligations, is obliged also to have adjusted his/her justified property claims, i.e. restitution and transformation claims of the entitled persons.

More details about subsidy programmes for the relevant year and also the information brochure of the Support and Guarantee Farm and Forestry Fund can be found at any Regional Agency of the Ministry of Agriculture CR.

The Ministry for Regional Development influences the state of our settlements and that of the countryside by the means of the Programme for Country Restoration. The municipality the application of which for listing in the Programme for Country Restoration has already been dealt with by the relevant District Authority may act as an applicant. The subsidy titles concern the following activities: restoration and maintenance of country structures and civil equipment, complex arrangements of public areas, restoration and establishing of the public greenery-, reconstruction of local roads, building of ways for cyclists and pedestrians, reconstruction and setting up of public illumination. Furthermore, subsidies for elaboration of urbanistic plans and urbanistic studies have been granted, but it is also integrated projects of countryside micro-regions and projects to develop infrastructure that shall be supported.

As to the departments of the Ministry of Environment, the updated Directive of the Ministry of Environment of the Czech Republic about granting of financial means from the State Environmental Fund for each year is also of great interest regarding the matter in question.

This Directive is consistent with the Act No. 388/1991, Coll. about the State Environmental Fund, and the activities related with cleanness of waters and air protection and those related with nature and landscape have been emphasised within the activity of the State Environmental Fund.

Since in the countryside and its creation, there are encountered the interests of many resorts, what might lead to conflicts, the necessity of mutual meetings comes into existence with the aim to serve the environment we live in. It is always necessary to pay proper attention to the recommended choice of autochthon wood-plants. The elaboration of the project of scattered greenery, the realisation of bio-centres and bio-corridors should be entrusted to the carefully chosen experts care. There should be observed the generally valid principle: to choose domestic wood-plants for optimal stand conditions.

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*Contact address:*

Ing. Helena Součková, CSc., Výzkumný ústav zemědělské ekonomiky, Mánesova 75, 120 58 Praha 2, Česká republika  
e-mail: souckovh@vuze.cz

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