# Wind Erosion Problems in Hungary

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About four million hectares of Hungarian agricultural land is subject to wind erosion. It is documented in Hungary that both on-site and off-site damage due to improper agricultural practices over the past years, is on the increase.

The yearly on-site wind erosion damage is estimated to be 10-15% of the total agricultural damage caused by water erosion, hail, drought, freezing, etc. (KARÁCSONY, 1994; SZABÓ et al., 1994; FEKETE, 1993). In Hungary it is possible to estimate this damage because the Hungarian State Insurance Company has collected data on the yearly cost of crop damage caused by wind erosion over the past 15 years.

Using these data the Wind Erosion Working Group of the University of Agricultural Sciences (Gödöllő) has constructed a Wind Erosion Damage Map of Hungary (Figure 1).

This map can be used to define the erodible regions of the country and it is helpful in planning better agricultural systems. In addition to crop damage the Working Group has considered the damage done to the environment and consequently to human health, since it is evident that dust transported by wind pollutes the air, and therefore affects people. As a consequence, another Damage Map has been compiled related to chronic bronchitis.

Unfortunately, despite the significance of Hungarian wind erosion problems, resources devoted to control and research have been fairly limited due to the well-known financial problems. Optimum technologies to describe, predict, measure, control and evaluate the impact of wind erosion are still under development.

The International Wind Erosion Workshop held in Budapest in 1991 served to enhance the exchange of a wide variety of information on this topic.

As a result of this research, the opinion has been formed that Hungary needs a new, specific wind erosion control strategy. This strategy should be an important part of the complex environment protection programme and it should consider recent knowledge on control possibilities, such as windbreak technology, no-till farming, mulch technology, etc.

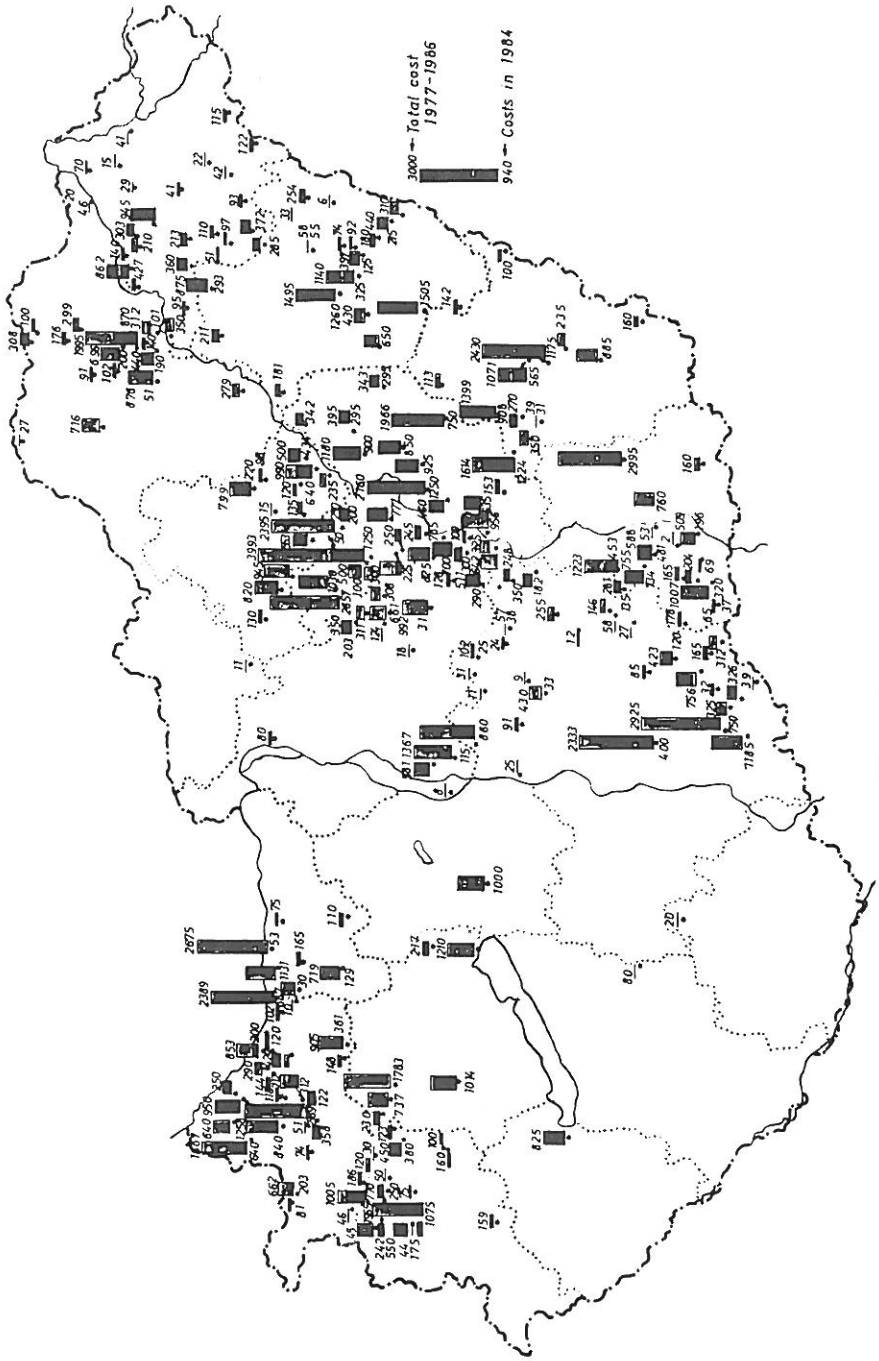


*Figure 1*
Wind Erosion Damage Map of Hungary
(Damage costs: Total cost (1977-1986) and costs in (1984) in 100,000 Hungarian Forints)

In recent years the concept of agricultural development has changed considerably. Instead of the global quantity aspect, quality (exportability), efficiency and economy (based on cost-benefit evaluation) and environmental consequences have become more and more important.

The restructuring of the planned economy can be characterized by the following tendencies in agricultural production:

a) *Privatization* of agricultural land to a rational extent:

- mixed ownership: co-existence and cooperation of private, cooperative and state sectors;
- decreasing size of farming units and agricultural fields - more flexibility and better possibility for rational land use, cropping pattern and agrotechnics according to the given ecological circumstances;
- ownership feeling - more care for maintaining soil fertility and for stabilizing the favourable state of the environment;

b) *marked-oriented production,* with special regard to efficiency (input reduction) and sustainability (prevention, or at least minimalization of harmful environmental side-effects);

c) *steps towards European integration*, with special attention to quality standards and environmental aspects.

The rational privatization of land and market-oriented production give potential possibilities for the establishment of a flexible, environment-friendly, alternative agriculture. This requires the following elements:

1. Territorial coordination of the agro-ecological conditions and the ecological requirements of cultivated crops, taking into consideration both production and environmental aspects on short-, mid- and long-term time scales (rational land use).
2. Homogenization of agricultural fields by rationalization of the field size, or by local amelioration and/or differential agrotechnics.
3. Precise and scientifically-based crop production technology with five fundamental elements:

a) Adequate cropping pattern and crop rotation;
b) minimalization of "production waste" (recycling);
c) improvement of water use efficiency;
d) rational use of fertilizers;
e) rational plant protection system with minimum use of chemicals.

The rate, direction and technologies of crop production are economy-driven. In contrast, the maintenance of soil fertility, the quality of surface and subsurface water resources, and the protection of the natural environment, the biosphere, are not economy-dependent but imperative tasks. The effective realization of these tasks must be jointly guaranteed by the state, the land owner and the land user.

## References

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