

Project reference number: GVOP-3.3.1.-2004-04-0068/3.0

Subject: soil-economic advice

Summary of the investigation-development

SUMMARY

The project is realised: Virág és Társa Bt. H-3529 Miskolc, Szilvás út 2. II/4.

Term of the project: 1 January 2005 – 31 December 2006

Aim: - The adaptation of the already successfully applied computerized nutrient-economic technical advising system in the Transdanubian region, to the Eastern agricultural region of Hungary.

- The introduction, promotion and application of the new system among farmers.

Target group: Northeastern, Eastern Hungarian agriculturists (field/vegetable/fruit farmers)

The step by step analytical process required for the already purchased „know-how” is the following:

- soil sample researches carried out by agricultural engineers in accredited laboratories (samples taken from specially designed fields)
- after analysis, results used for giving technical advice on nutrient-reverse with the help of the used advice computer-program
- on the basis of the technical advice nutrient-reverse under the supervision of agricultural engineers
- sampling of the cultivated plant in the appropriate phenological phase and the analysis of the plant samples in the accredited laboratory
- on the basis of the results of plant-analysis and results of soil-testing, the correction of the technical advice on nutrition-reverse is carried out (if necessary)
- in the knowledge of corp-result the correction of computerized advice-program is possible which provide a safer and more accurate use in a given area

Within the scope of the project we carry out experiments on soils characteristic of a given region (leached chernozem soil, lowland chernozem soil, brown forest soil, meadow soil, humic sandy soil) with the following plants: winter wheat, spring barley, corn, sunflower, autumn rape, potato, apple, apricot and vine.

During the realization of the project we collaborated with 38 agricultural growers. Altogether we examined 862 soil samples and 512 plant samples which are connected to the area of the soil samples. On the basis of examination of soil and plants, we prepared 459 technical advice on nutrient-reverse.

After analysing the results of N_{\min} -research on arable lands, it can be stated that cultivated plants can be nurtured more precisely by nitrogen than by the more traditional N nutrition based on the humus content of the soil. It can be stated that the effects on the technical-advice system's guide numbers of the agrieological region examined in the project can also be used in our region. However, it is more likely that less phosphorus and potassium-based artificial fertilizer provide enough for cultivated plants, but in order to estimate the exact amount of these fertilizers further duration test results are needed.

Soil and plant samples of lime chlorosis (Fe-deficiency) of the vine, beginning symptoms of apoplexy of the apricot and symptoms of bitter pit (Ca-deficiency) of the apple plantation were analysed too.

In July 2006 we carried out spraying with 2 leaf-manure combinations in grape vegetation.

1. variation: tartaric acid, Fe(II)-sulphate, Mn(II)-sulphate, Zn-sulphate, potassium-chloride

2. variation: ascorbic acid, see the rest under point 1.

We recognized 60% improvement in the first case while in second variation the improvement was 90 %.

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In two apricot plantations with the symptoms of apoplexy we carried out treatments in the summer of 2006. We used leaf-manure containing Zn, Mn, Fe, K, Mg, Cu, N, ascorbic acid and folic acid, respectively Zn, Mn, Fe, K, Mg, Cu, P, N, ascorbic acid and folic acid. The result should be seen in 2007.

For the treatment of bitter pit of apple we suggest to consider the following:

- instead of using ammonium-content artificial fertilizer, Ca-nitrate is advised;
- at least two Ca leaf-manuring is necessary after crop-purification;
- under wet and humid weather conditions several Ca leaf-manuring is absolutely recommended during vegetation;
- furthermore leaf-analysis in the first half of July and Ca leaf-manuring with reconsideration of the degree of nutrition in August is necessary;
- exaggerated use of phosphorus and early harvest should be avoided;
- leaf-manure should contain Fe and Zn microelements as advised by experts.

Miskolc, 30. December 2006.

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