

Survey about the use of crop protection chemicals (NEPTUN) in sugar beet in 2000 and 2005

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Introduction

Information about the actual use of crop protection chemicals in agriculture is little or not available in Germany and other European countries. However, for research and decision making in politics such data are of importance. Therefore, a project called "Network for the Evaluation of the Pesticide Use in different Natural areas of Germany" (NEPTUN) was established. The aim of NEPTUN is to develop concepts of systematic collection and statistical analysis of realistic practice specific data about the use of crop protection chemicals in relevant crops in Germany.

Methodology

- A data collection through a survey related to the vegetation period 1999/2000 contained all chemical plant protection measures and growth regulator applications in relevant crops, including sugar beet. A survey in 2005 was repeated for sugar beet only, was organised by the Institute of Sugar Beet Research (IfZ) and was carried out by the sugar factories in collaboration with sugar beet growing associations.
- The intensity and frequency of the use of crop protection chemicals in sugar beet was documented.
- Standardised Treatment Index (STI) as indicator for the intensity of pesticide use in agriculture was measured. The STI is calculated as a number of the crop protection chemicals per application, the actual application rate in relation to the recommended rate (indicated in the technical data sheets of pesticide products) and the percentage of the treated area.
- The data analyses of NEPTUN 2000 referred to the 34 formerly defined soil climate regions (SCR) and 16 newly defined SCRs in 2005. The number of investigated representative agricultural enterprises was 382 and 584 for 2000 and 2005, respectively.
- Collected data was subjected to a comprehensive plausibility check at IfZ. Calculation and publishing of the results was done by the Institute for Technology Assessment in Plant Protection at the Biological Research Centre for Agriculture and Forestry (BBA).

Results

- Due to the new subdivision into SCRs and some underrepresented CSRs in 2000 (low number of enterprises) a comparison of the results of SCRs among surveys is not appropriate.
- The calculated STI of all pesticides increased from 2000 to 2005 by 0.55 (Figure 1).
- The STI of herbicides was the highest of all pesticide groups. The difference of STI between both surveys was marginal.
- Compared to 2000 a tripling of fungicide index was estimated for 2005. This increase corresponds to the large spread of foliar diseases over this time period.
- The insecticide use in sugar beet is minor (STI = 0.13-0.19, Figure 1).
- Molluscicides are of importance only for site specific control, since the slugs occurred on the acreage in patches.

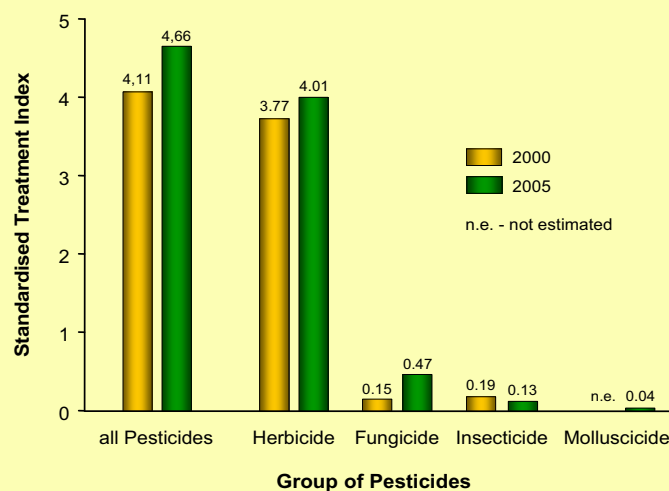


Figure 1: Comparison of calculated Standardised Treatment Index (averaged over all soil climate regions) of sugar beet in survey 2000 and 2005 (¹Roßberg et. al., 2002, ²Roßberg, 2006)

The amount of applied pesticides and corresponding STI value can vary among surveys as a result of variation in weather conditions, crop rotations and pest and diseases pressure. This fact has to be considered when interpreting the survey data.