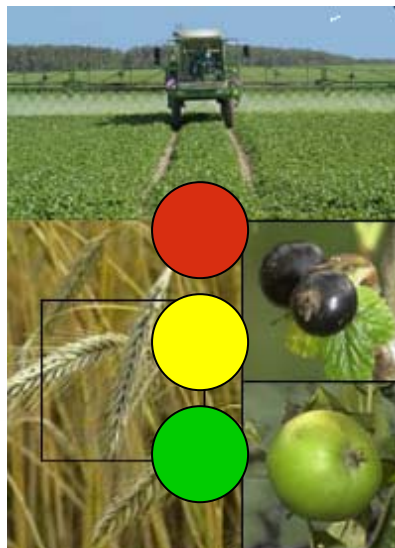


# QualityTools

Improvement of monitoring systems for fruit and vegetable safety and quality by new tools for diagnosing critical traits and by improved information management with expert systems

## Background

Pesticide residues in fruits and vegetables represent a risk for human health. Many efforts are made from the trade as well as from the legislator to reduce the residuals and to identify products with contents above the highest legally tolerated values. For control, pesticide residues are determined by chemical analyses. However, these are based on random samples, are time-consuming, expensive, and often results are not reported to the producer, unless tolerable residues are exceeded.



## Main Targets

The main target is to improve food safety by developing a risk orientated expert system for monitoring pesticide residues of all supplied batches of fruits and vegetables. It should be easy to handle, cause only few additional costs and deliver rapid results. The model should be established at an early stage of the marketing process so that products with critical residue values can be removed from the supply chain before the goods reach the point of sale. To prevent unnecessary repeated sampling of batches residue data should be made transparent to all members of the supply chain; also retraceability and assignment of the data to the producers must be guaranteed.

## Target Groups

Target groups are public institutions, producers, retailers, consumers and science. They all benefit from the supply of safe products – by extensive consideration of the legal restraints, supply of safe products, guarantee of high quality fruits and vegetables for consumption and by establishing a database for forthcoming research.

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<b>Acronym</b>	QualiTools
<b>Title</b>	Improvement of monitoring systems for fruit and vegetable safety and quality by new tools for diagnosing critical traits and by improved information management with expert systems
<b>Partner regions</b>	<p>Prof. Dr. Georg Noga/NRW nogag@uni-bonn.de</p> <p>Dr. Lukas Bertschinger/Switzerland lukas.bertschinger@faw.admin.ch</p> <p>Prof. Dr. Olaf van Kooten/Gelderland olaf.vankooten@wur.nl</p> <div style="text-align: right;">  </div>
<b>Duration</b>	November 2005 – September 2007
<b>Project approach</b>	The concept is based on the prediction of pesticide residue values in fruits and vegetables at harvest by considering factors like application rate, waiting period and climate data. Existing and available sources of databases have to be identified in the partner regions. Essential are assured application data from the producers, results of chemical analyses and their assignment to products and batches. For validating the model, the predicted pesticide residue values of the products have to match with lab analyses.
<b>Expected results and outputs</b>	With availability of assured application data from the producers a good correlation between the predicted values and the measured lab values can be expected. If the correlation is insufficient, other influencing factors have to be identified and implemented into the model. The developed expert system needs the input of various databases (e.g. application rate, time of harvest, climate data) and will be linked to a given datapool (e.g. pesticide metabolism, waiting period, crop). It should be available to all partners of the supply chain to avoid repeated or multiple sampling of batches. The output will be forecasted pesticide values of all considered batches by the system. If the system indicates batches with critical values, lab analyses have to follow. Hence, expensive chemical analyses can be reduced to such suspicion samples.