Adjustment of the quantity of PPP according to the leaves density and the sprayer parameters in orchards

Kaul, Peter[1], Gebauer, Sabine[1], Moll, Eckard[2], Ralfs Jens-Peter[1], Dröge, Kristin[3]

[1] Julius Kühn – Institut, Institute for Application Techniques in Plant Protection
[2] Julius Kühn – Institut, Data Processing Group
[3] Chamber of Agriculture Lower Saxony

Julius Kühn-Institut
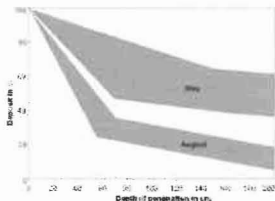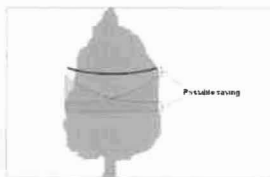Federal Research Centre for Cultivated Plants

Introduction

Variability in leaf density leads to differences in the penetration of canopies.

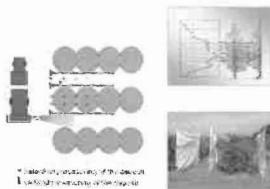Leaf density of apple trees varying considerably.

The existing differences in leaf density causing disparities in deposits.

Deposit on the backside of the tree – seen from the sprayer – is additional and can be saved.

Method and results

Measuring all parameters which influence the penetration and measurement of the deposit in front, middle and on the backside of the tree will lead to a data pool.

Array arrangement for measuring the deposit inside and outside trees. (about 300 experiments)

Selected parameters influencing deposits within trees.

Results of the multiple regression analysis between the parameters possibly taking an influence and parameters and deposit measured:
1. Parameters actually taking an influence.
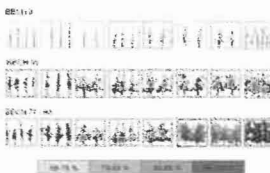2. An equation to describe the deposit on the backside of the tree.

Usage

Multiple regression analysis of the data pool delivers a model to calculate PPP saved.
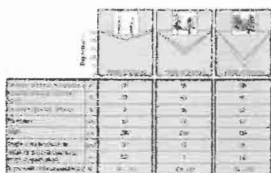
Examples for calculating the reduction of PPP.

Two possible ways of how to use results.

An example of a handout specific for the sprayer used. The colors of the frames show the reduction of PPP.