O.50 - Towards a camera network for early pest detection in greenhouses

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In this paper we promote early bioagressor detection in greenhouse crops in order to reduce pesticide use. Our target application is the detection of pests on plant organs such as rose leaves. Static imagery vision systems used in greenhouse experiments are limited by their spatial and temporal sampling abilities. The goal of this work is to define an innovative decision support system for in situ early pest detection based on video analysis and scene interpretation from multi camera data. This non-destructive and non-invasive approach will allow rapid remedial decisions from producers. The major issue is to reach a sufficient level of robustness for a continuous surveillance. To this end, vision algorithms (segmentation, classification, tracking) must be adapted to cope with illumination changes or with plant movements. The first prototype of our decision support system is being tested in a rose greenhouse with five wireless video cameras. The algorithms currently implemented target the detection of white flies and aphids. We present preliminary results for insect detection on sticky traps. We follow a generic approach to design a system easy to adapt to different categories of bioagressors.