



EntoLab

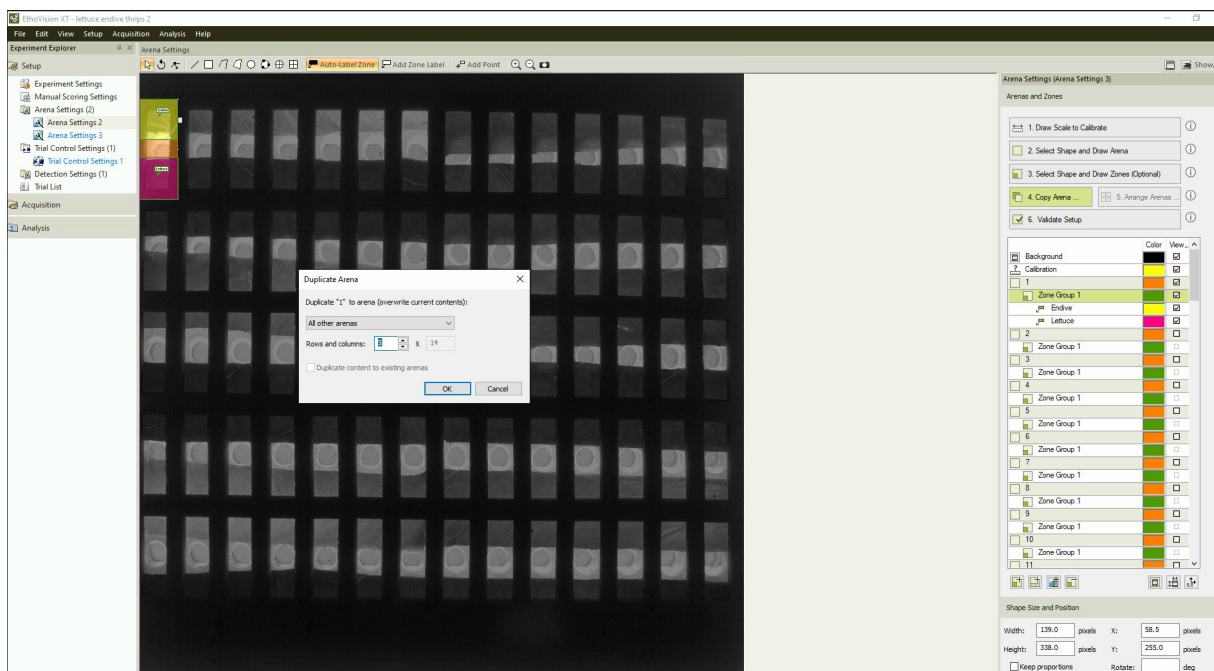
Video tracking with EthoVision XT

The data acquisition core of the EntoLab system is EthoVision XT, Noldus' flagship computer vision and video tracking software, which has been in continuous development since its introduction in the 90s and is used in thousands of laboratories around the world.

EthoVision XT processes live video streams or digital video files, frame by frame, at user-defined image resolution and sampling rate. In each video image, the software looks for the insect and - if found - separates it from the background, extracts key features (such as the XY coordinate of the body center) and stores those in a track file. It does that for each arena in the image, up to 300, whereby each arena (no-choice or two-choice) represents an independent replicate of the experiment. The software contains advanced image processing algorithms, which allow EthoVision XT to cope with a wide variety of insect-substrate combinations, ranging from brightly colored beetles to greenish thrips, on light or dark colored leaves, fruits or filter paper.

EthoVision XT can process a single video file or a batch of files in a fully automated fashion. In case of multiple EntoLab chambers running in parallel, this leads to an unprecedented throughput of screening.

ASSIGN PLATE DESIGN



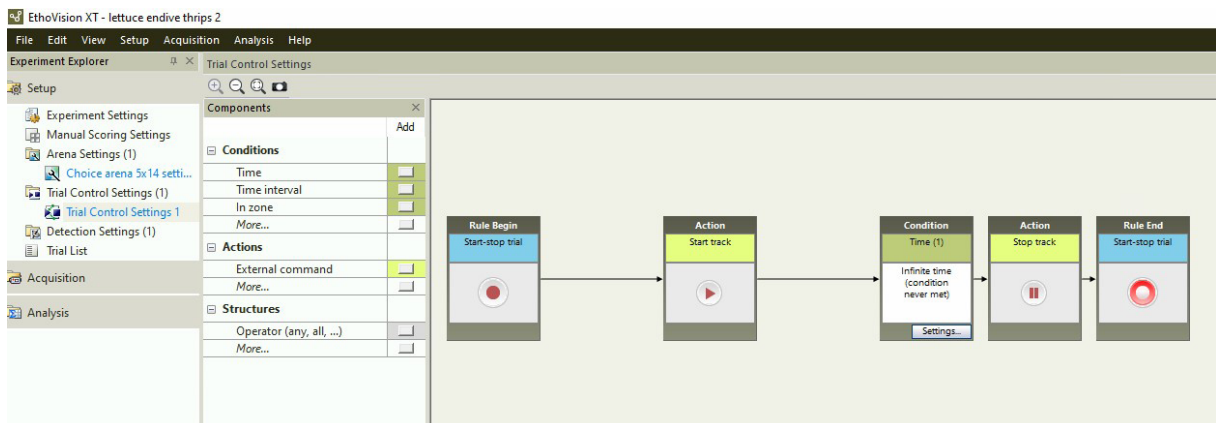
The EthoVision XT software helps you to design your experiment and assay plate layout. After drawing one arena with zones inside, this can be duplicated automatically across the entire assay plate.

DEFINING ZONES FOR 2-CHOICE TESTS



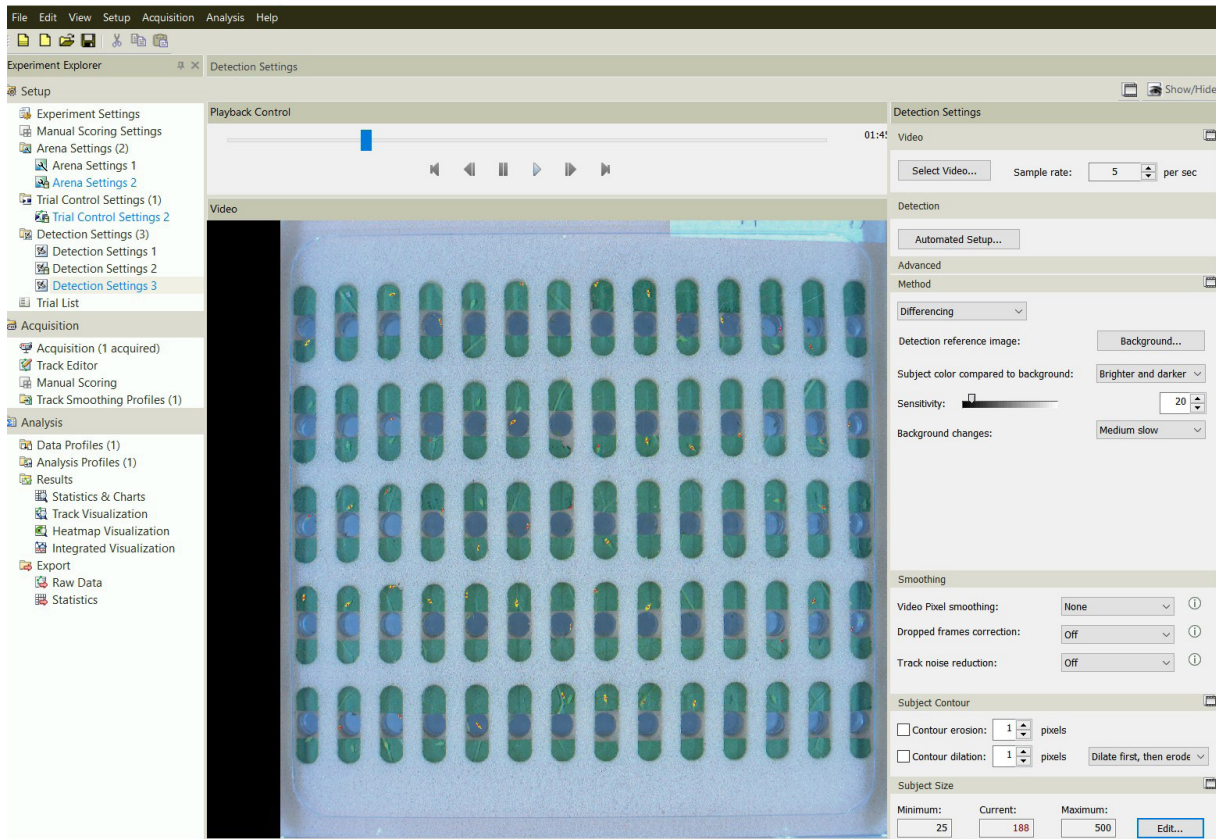
You can modify the zone arrangement to fit the size and arrangement of the leaves or leaf strips.

DEFINING THE TRIAL DURATION, START, AND END



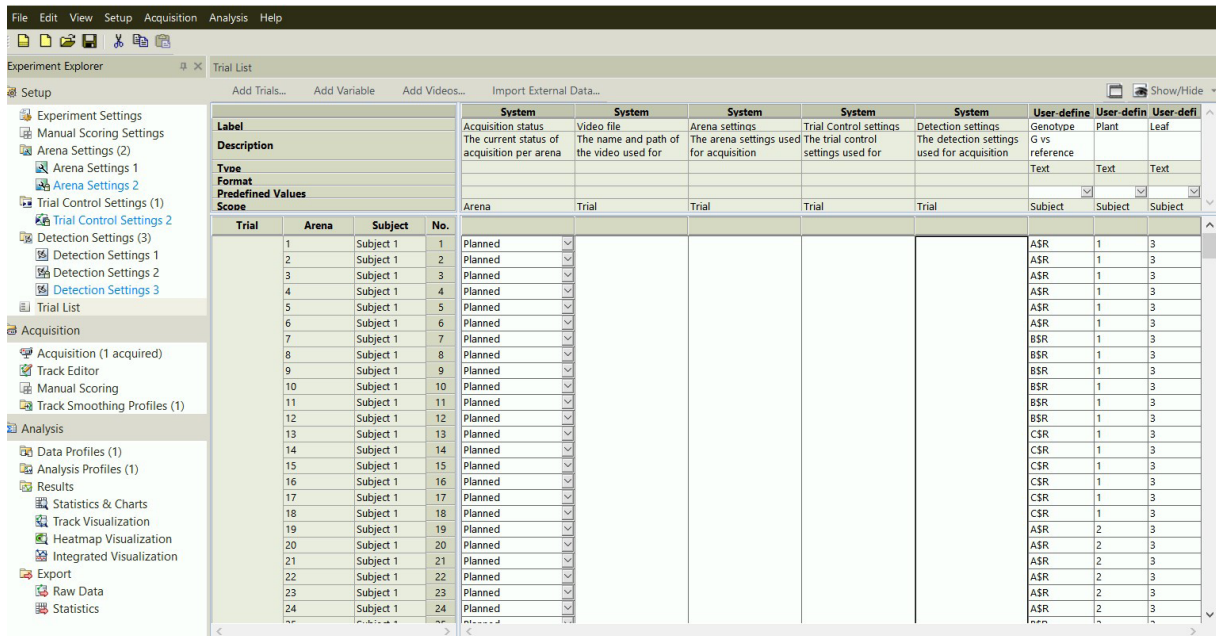
Trial control settings allow you to precisely define the start and end conditions for the trial, as well as the duration.

OPTIMIZING THE DETECTION SETTINGS

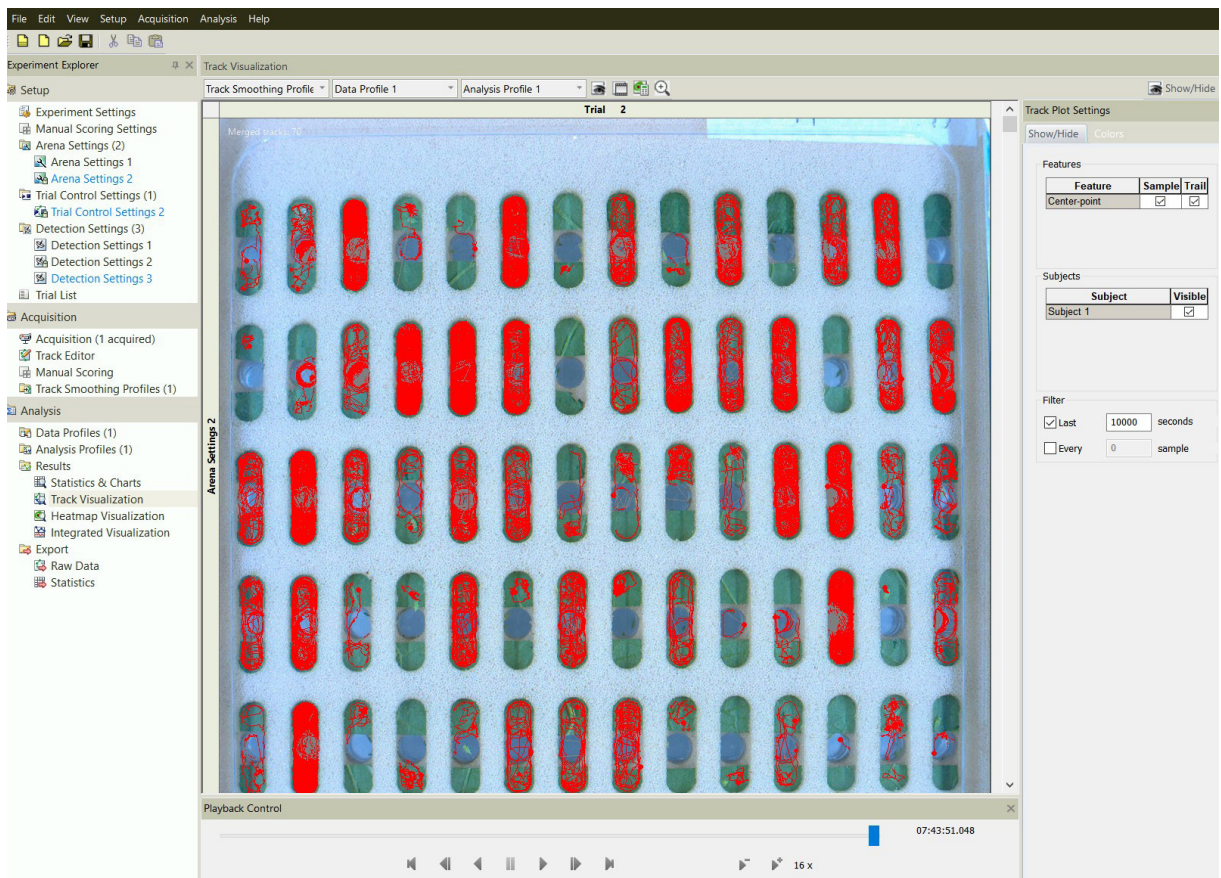


The EthoVision XT software allows you to define how the insect is detected against the background. Several options are available, based on different image processing techniques. Different settings can be saved and compared for efficacy.

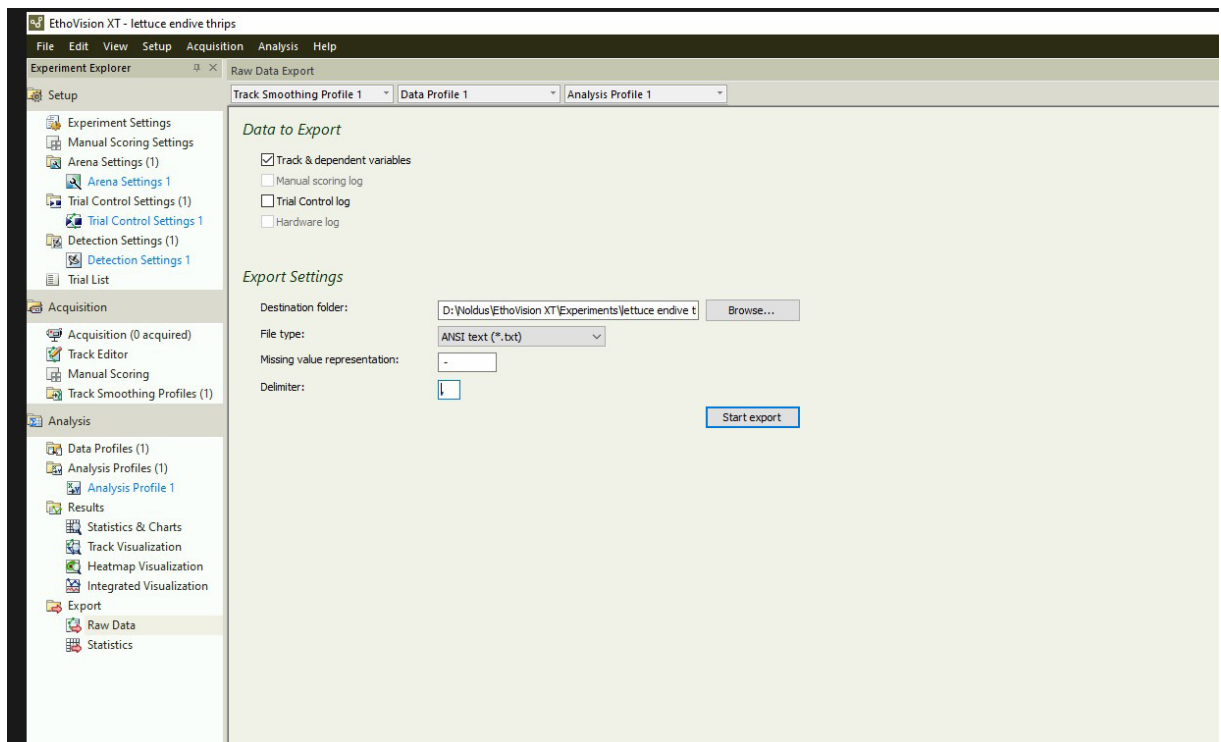
THE TRIAL LIST



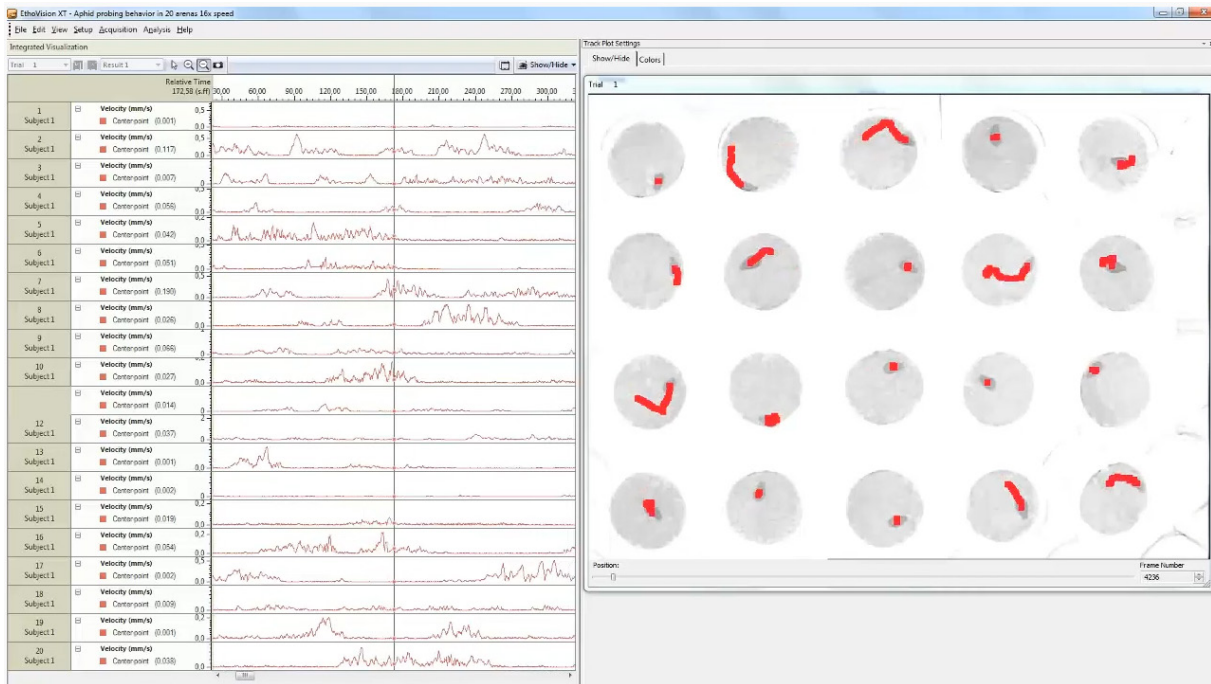
TRACK VISUALIZATION



After the tracking is completed, EthoVision XT can plot the movement track of each insect in its arena. This example shows a two-choice assay, each arena consisting of a release zone (blue circle) and two leaf zones. Arenas with insects that were dead or showed clearly aberrant behavior can be viewed here and automatically excluded from the analysis in EthoAnalysis by means of a range of criteria.



Finally, EthoVision XT exports the track data (time series of XY coordinate, distance moved, velocity, zone) to a file, ready for data analysis with the EthoAnalysis program.



Playback of a trial with 20 aphids being tracked on Arabidopsis. The screen shows the track of insect (red line) as well as the velocity (line graph).

[VIEW TRIAL PLAYBACK](#)

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