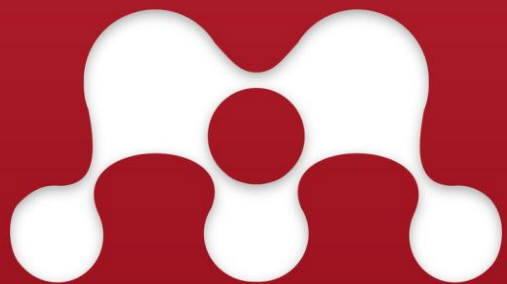


Computer Applications

ImageJ 12

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MENDELEY



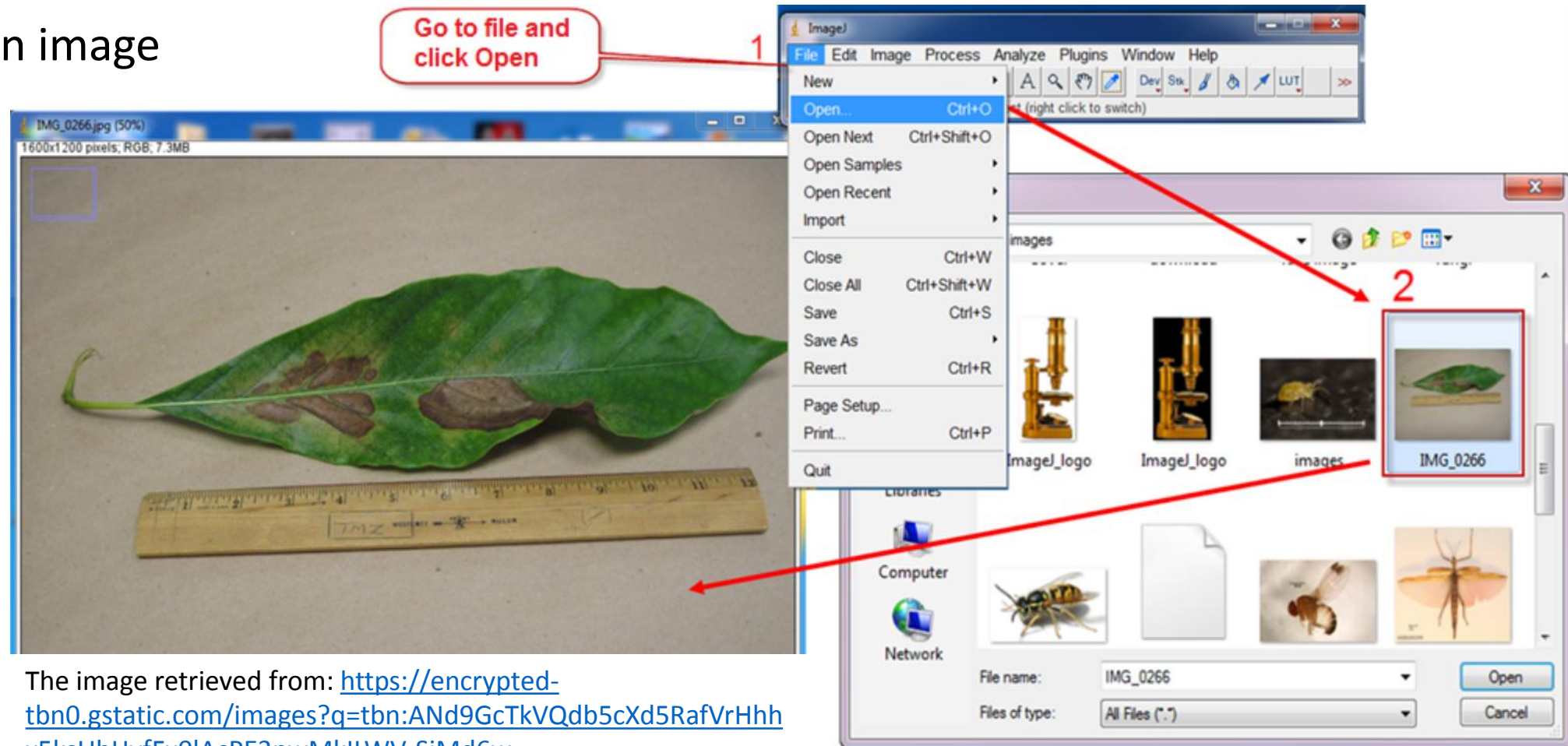
ImageJ

Image Processing & Analysis in Java



Estimating leaf spot percentage

- ❖ The first step is opening the image: Go to File >> Open >> Brows then double click to open image



The image retrieved from: <https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcTkVQdb5cXd5RafVrHhhx5ksUhHvfFx0IAcPE3pwMkILWV-SjMd6w>

Estimating leaf spot percentage

- ❖ Scale the measurements: Draw a line between 1-2 cm >> go to Analyze >> Set scale

Write "1" in Known distance field and "cm" in the Unit of length field

1

2

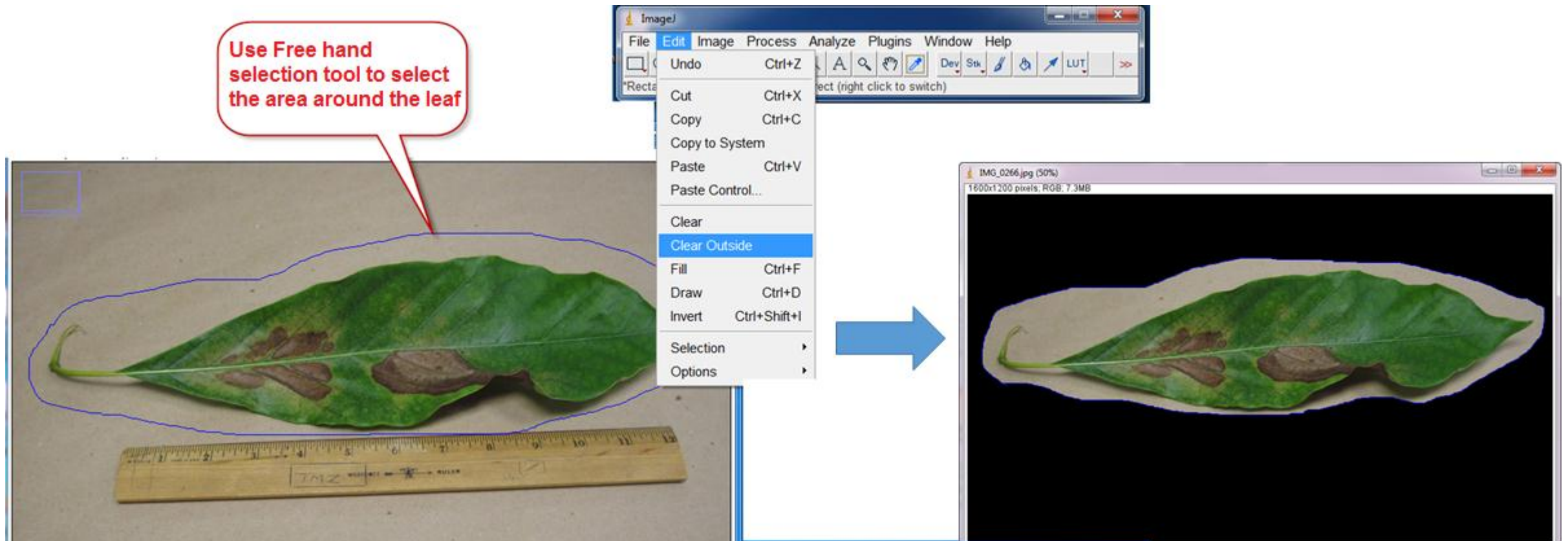
3

4

Distance in pixels: 100
Known distance: 1
Pixel aspect ratio: 1.0
Unit of length: cm
Click to Remove Scale
 Global
Scale: 100 pixels/cm
OK Cancel Help

Estimating leaf spot percentage

- ❖ Select the leaf area by free selection tool >> go to Edit menu >> Clear out side



Estimating leaf spot percentage

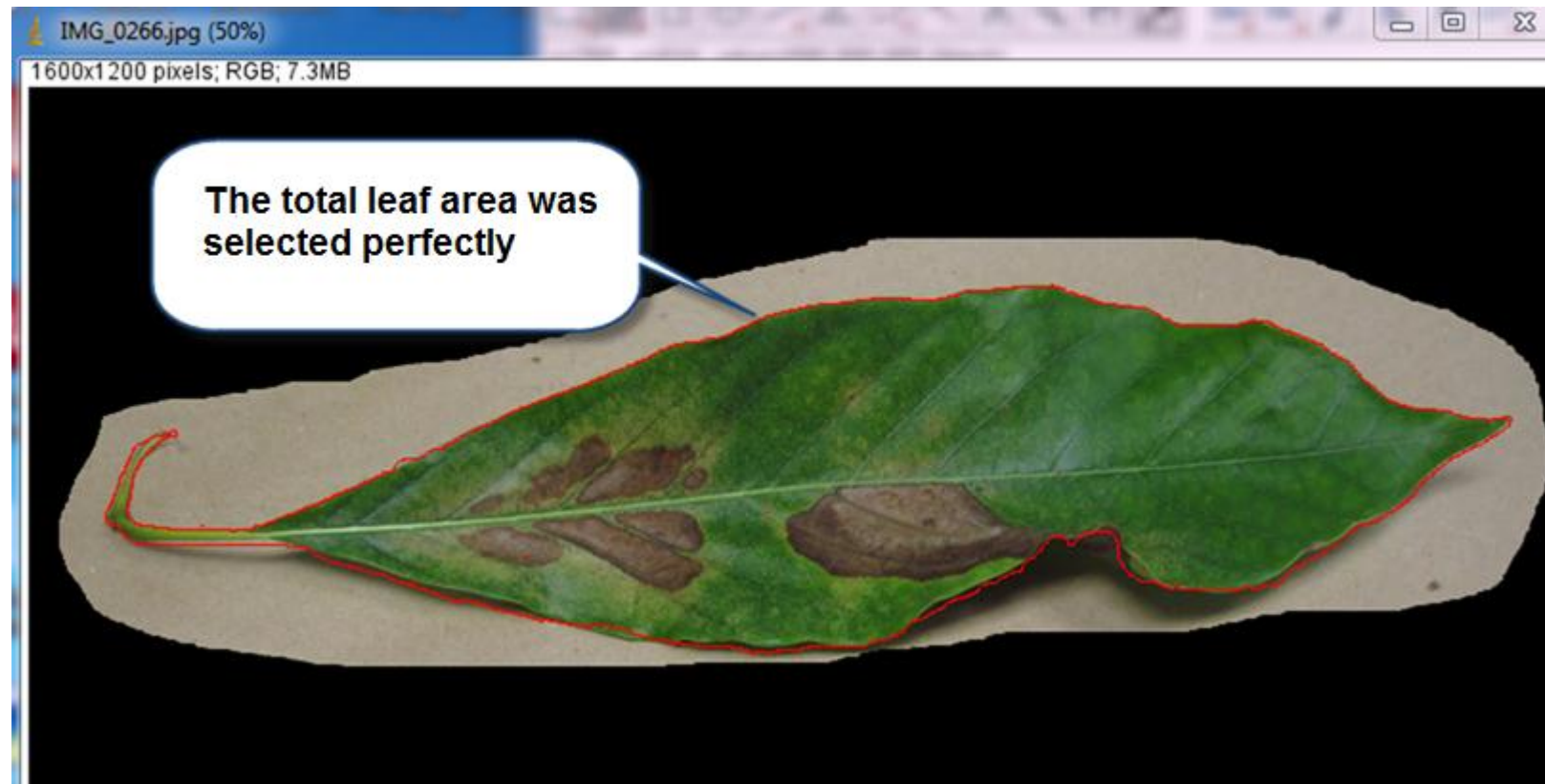
❖ Thresholding image: Go to Image menu >> Adjust >> Color threshold

The image illustrates the process of thresholding an image in ImageJ to estimate leaf spot percentage. It shows three main components:

- ImageJ Menu:** The 'Image' menu is open, and 'Color Threshold...' is selected under the 'Adjust' submenu.
- Threshold Color Dialog:** The 'Threshold Color' dialog box is shown with the following settings:
 - Hue: 0 to 255
 - Saturation: 61 to 255
 - Brightness: 0 to 255
 - Thresholding method: Default
 - Threshold color: Red
 - Color space: HSB
 - Dark background
- Resulting Image:** The image 'IMG_0266.jpg (G) (33.3%)' is shown with a red shaded area representing the leaf spots. A callout box points to this area with the text: "The red shaded area using slide bars represents nearly the total leaf area". Another callout box points to the 'Select' button in the dialog with the text: "Click here to select the shaded area to measure it".

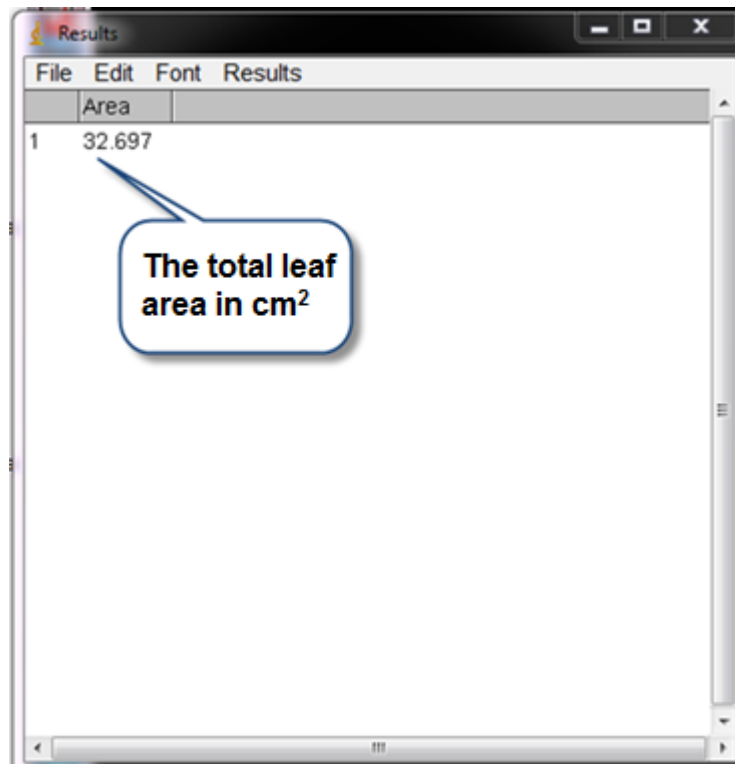
Estimating leaf spot percentage

- ❖ After press select button, the selected area may includes some noise (unwanted selections). We can clean that by Selection brush tool (right click on Oval tool). The selected area should be as below:



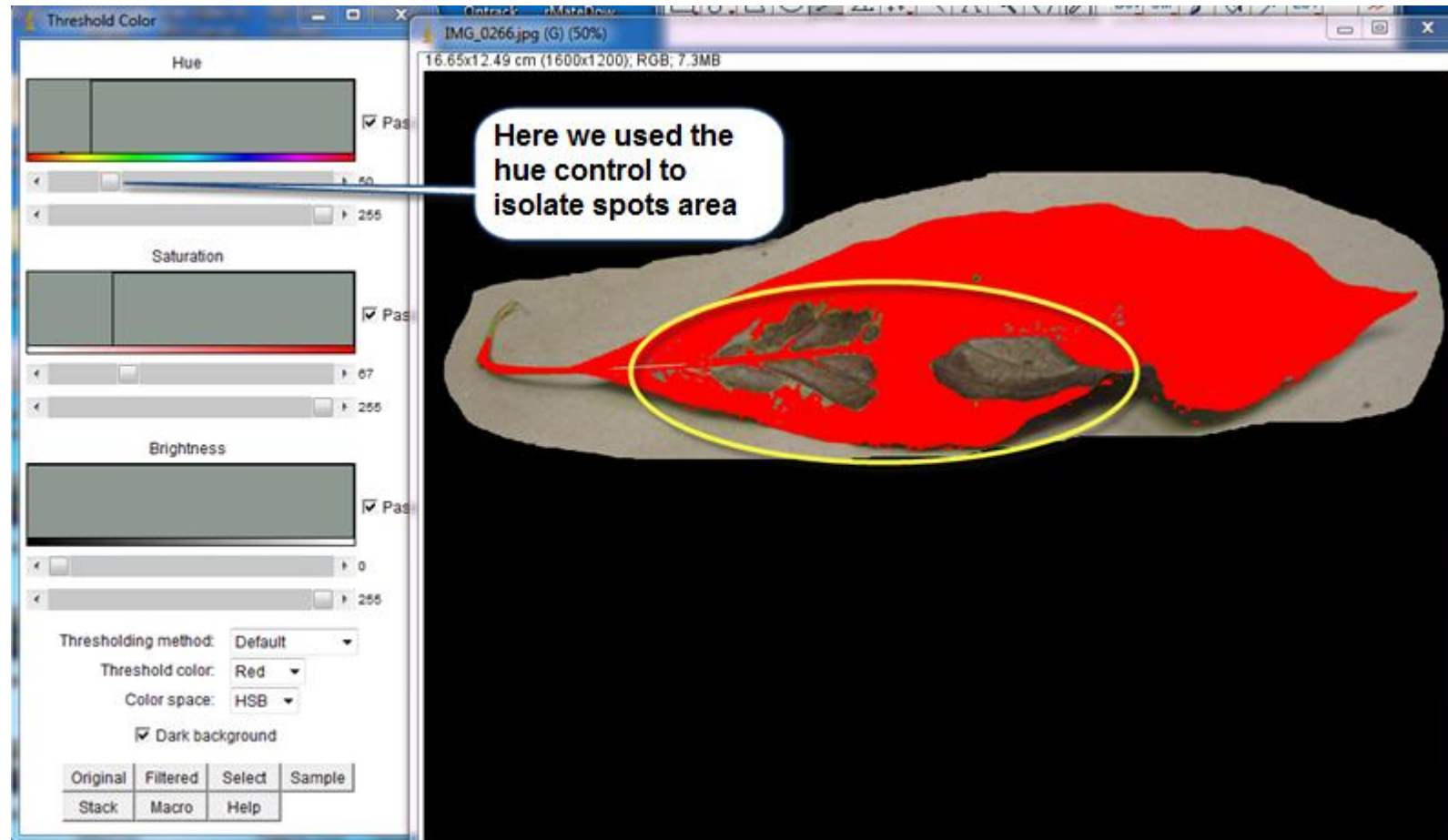
Estimating leaf spot percentage

- ❖ Go to Analyze >> Measure or Ctrl + M to calculate the total leaf area



Estimating leaf spot percentage

❖ In the same way (by color thresholding) we have to select the damaged areas.



Estimating leaf spot percentage

- ❖ To threshold the spots we have to invert selection by un-check Pass check box of the Hue control box.

Threshold Color dialog box settings:

- Hue: Pass
- Saturation: Pass
- Brightness: Pass
- Thresholding method: Default
- Threshold color: Red
- Color space: HSB
- Dark background

Buttons: Original, Filtered, Select, Sample, Stack, Macro, Help

Callout boxes:

- Un-check this box will reflect shading and the spots will be shaded
- Notice the color noise which can affect the measurement accuracy. This can be cleaned by Selection brush tool
- Click Select button to select the shaded area

Estimating leaf spot percentage

- ❖ After press select button, the selected area may include some noise (unwanted selections). We can clean that by Selection brush tool (right click on Oval tool). The selected area should be as below:

