



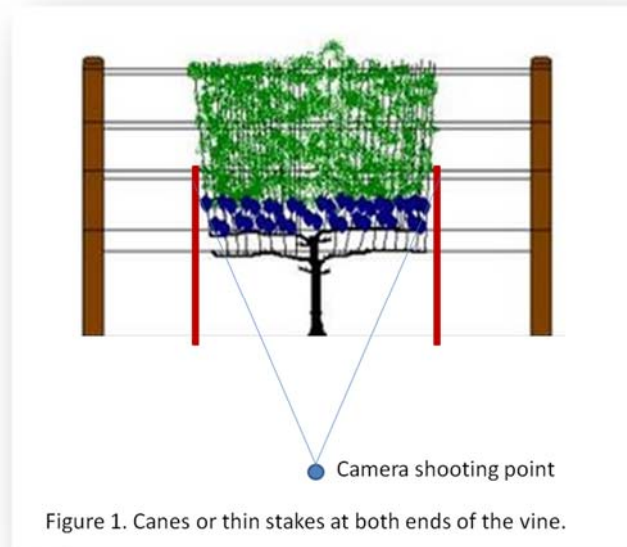
## PROTOCOL FOR TAKING GRAPEVINE CANOPY IMAGES IN THE FIELD

In order to develop the grapevine canopy analysis in collaboration canopy images will have to be taken just before and after defoliation (on the same day), and from that time onwards on a 10 day basis.

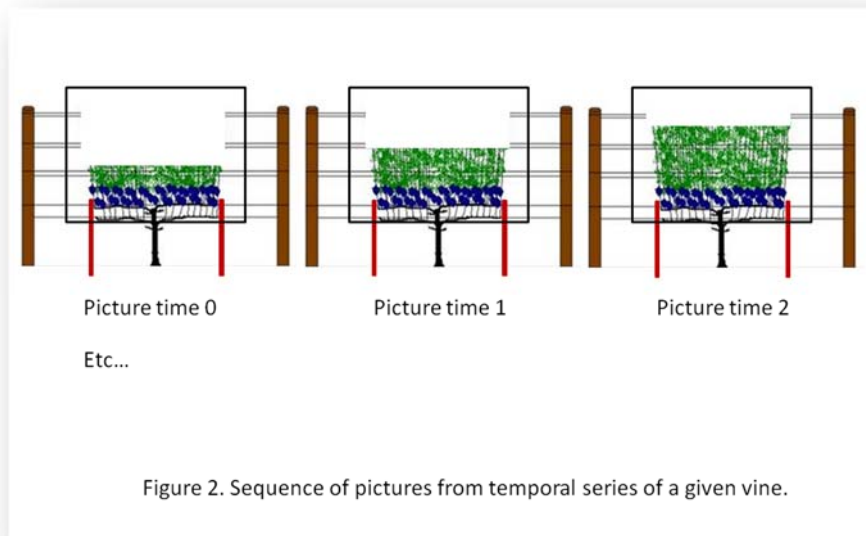
The vines should be photographed under similar natural light conditions (in one hour aprox), and with diffuse light preferably. A standard digital reflex camera of good resolution 10MP-14MP with a flash light, in order to avoid shadows in the canopy, should be used. The camera should be mounted on a tripod set normal to the canopy 2 m away from row axis and at 1.00 m above the ground

In order to take the same image always, from the same reference point and the same size the following easy steps could be taken:

1. Two woody or plastic canes could be placed (somehow stuck or driven into the soil) at both left and right end sides of the cordons of the canopy (Figure 1). Regarding the canes, it would be even better if they were painted in two colours (ie. red and white) at 10-15cm intervals, so the dimensional reference will also exist in all the images. These canes should not be removed until the end of the season or imaging period. This way, the same references are used for the temporal series. Images should be taken always from the same point at the same distance. If you make some sort of "triangle" with two ropes or cotton thread so that the point from the camera to be set (with a tripod) does not change from one date to another across the whole period (see Figure 1).



2. In order to avoid the canopies of adjacent vines of rows behind the vine of interest being also photographed, thus interfering with the image, a white cloth, paper, screen... should be placed behind the canopy of the vine to be photographed. Field of view would be constant during the season. At the very early stages, only the first 50-60 cm of the vertical size of the picture will be filled with canopy but as the season progresses we will eventually fill up the whole vertical axe. All images should have the same number of pixels and field of view, and comparison among them for temporal series would be much easier (Figure 2).



3. Finally, avoid the automatic mode for capturing the pictures. You'd better set a manual configuration and make all pictures under the same set up of the camera.
4. Do not edit the pictures with photoshop or similar software, just rename the pictures indicating the grape variety, grapevine number, treatment and date of acquisition and it will be fine.