e-news

from the Photographic Alliance of Great Britain

1600 pixels by 1200 pixels

will be adopted as the PAGB standard for all our Inter-Club & Inter-Federation Competitions and for the Awards for Photographic Merit – but not until 1st January 2018

1200 pixels

2018

<<<<<<<<<<<<<<<<<< 1600 pixels >>>>>>>>>>>>>>>

The introduction of the new projection format has been scheduled in 2018 to allow Federations and Clubs to make the necessary adjustments, and possibly purchases, to be able to collect and store competition entries in this new size.

The article which follows, by the PAGB Projection Guru, Libby Smith, may shed some light on the subject and help explain why we do not think it is a good idea to move to the wide-screen format.

An insight into different Resolutions

Resolutions – *1400x1050 and 1024x768 have been the common resolutions for a number of years now, and in recent times 1920x1080 (Full HD Format) has also become popular. Now with the new projectors 1600x1200 and 1920x1200 are also being bandied about.*

This article will hopefully help to explain what these mean. This is not written as a technical document to explain how projectors work or how pixels are formed or what they are – It is to explain the basics of what happens when you project different pixel resolutions on a screen, using different settings on a projector.

The resolution you project largely depends on what is available on your projector. The photos then need to be sized to fit the maximum chosen projector resolution otherwise the projector will resize them down to what it can project. The following should help explain what is meant by resolution.

The format we have been used to in the PAGB for a number of years is **4:3** i.e. 1400x1050 (1024x768). I have used a **4:3** proportion screen to demonstrate how different resolutions will look on this, assuming the image is zoomed to make the photo as large as possible on the screen.
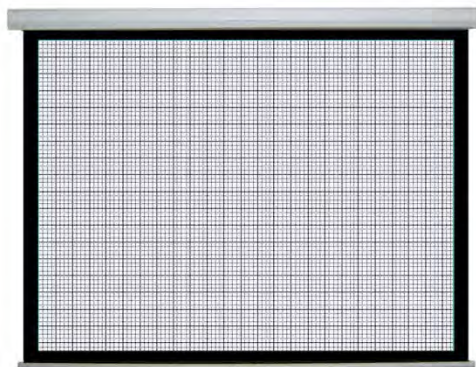

If we set our projector to project **1400x1050** it will project a picture made up of a grid of squares (that we call pixels) **1400** of them width wise and **1050** of them high. (You can see the squares on some types of projectors, others will be more difficult to see due to the technology they use). When the projector is set to 1400x1050 - It can't project any more pixels than this - it must fit any image into that grid. (If you want to show more pixels you must choose a different resolution setting on the projector.)

When our picture is projected it is projected in the same grid of squares. If you zoom in you will see each individual pixel. Right Hand Image shows details from the red area below.
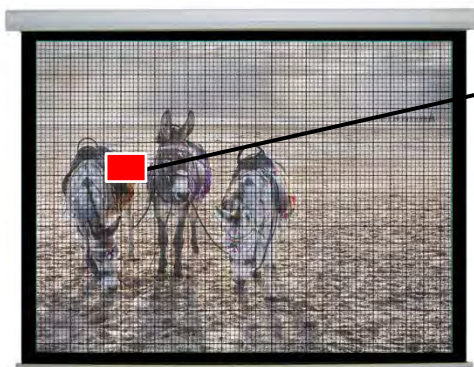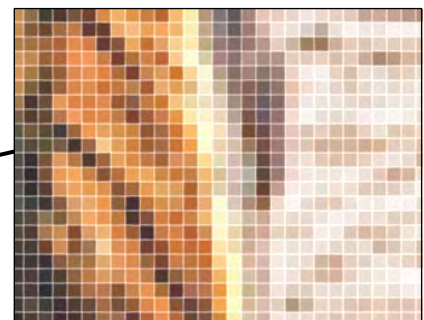
This is why we require to size our picture to 1400 maximum pixels wide and 1050 maximum pixels high. (At this maximum size it will fill the 4:3 screen)

If you don't size the picture; the projector will throw all of the extra pixels away by cleverly choosing the ones that it thinks gives the best representation of the photograph. This is why we pre-size our images to achieve the best quality, matching every pixel that the projector can use i.e. 1400x1050 max

An insight into different Resolutions

Portrait Format images are no different they must still fit in that grid of squares 1400 wide and 1050 high.

If you don't size it 1050 high, say you size it 1400; the projector will throw away the extra pixels as it cannot project any more than 1050 of them.

Irrespective of the shape of your picture, it will display it on that 1400x1050 grid.

If your picture is smaller than 1400x1050 for example – say 1024x768 it will project it on the grid matching every pixel with a pixel on the projector 'grid' as on the left.

(*This assumes you are not distorting the image by setting 'Fit to Screen' on your laptop – this makes pixels up*)
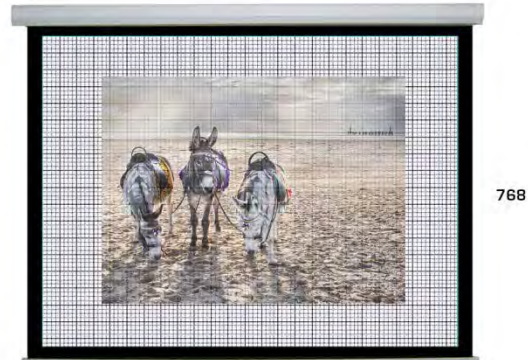
Now we'll look at some different resolutions; Firstly sticking with 4:3 and the new 1600x1200.

When the projector is set to 1600x1200 it will display a grid of squares 1600 of them across and 1200 of them high.

(On the same size screen as above this will result in finer squares mean finer quality and will again fill the screen)

And again the maximum number of squares (pixels) available for a 'portrait format' image is 1200.
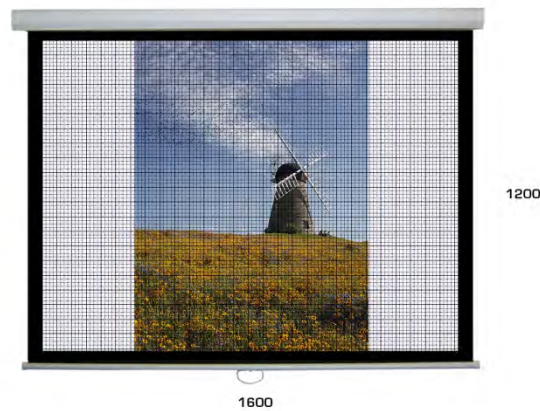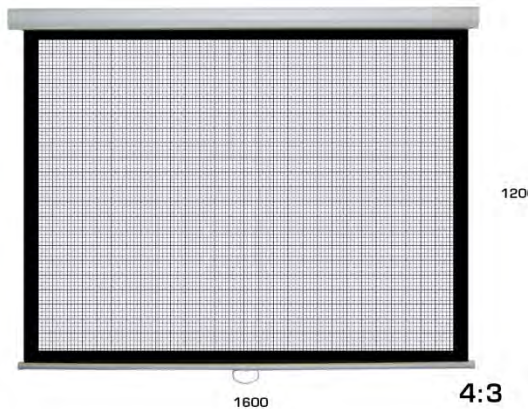
The following show how images pre-sized to 1400x1050 and 1024x768 will look on your screen <u>when the projector is set to 1600x1200</u>.

An insight into different Resolutions

This portrait image was sized as 1050 pixels high.

The landscape was sized as 1400x1050.

The one on the right was sized as 1024x768.

Obviously you could fill the screen with any of these images by zooming in, but you can't do that for every image, hence why you set the projector up for the biggest picture it can project i.e. to the projector 'grid' of 1600x1200 (to accommodate photos sized up to 1600x1200) This becomes your 'projectable area'.

Now let's look at a couple of the other popular resolutions; 16:9 and 16:10 on the same projector screen as above (both designed to benefit wider format pictures)

Firstly; 1920x1200 or 16:10 - This means the projector projects a grid of squares 1920 across and 1200 high, but because it is constrained by the width of the screen it can't now fill all of the area it did before.

The portrait image is again contained within that grid (max. 1200 pixels) so it appears smaller (below) It is now only 47% of the projectable 'grid' area.
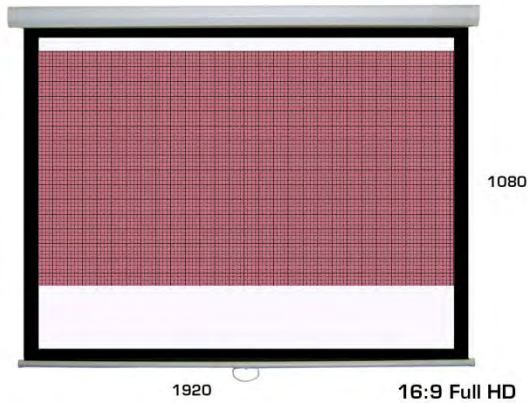

If we have a look at a 4:3 proportion image on this projector setting (Left), (1600x1200) we can see that this also projects smaller as it has to fit in to this new 'grid'. It is now only 83% of the projectable area.

An insight into different Resolutions

16:9 Full HD – 1920 x 1080 has been the more common of these resolutions

When this is set on the projector a grid of 1920 squares (Pixels) across and 1080 high is used.

This fills the screen width wise but the height is now much less than the 4:3 that filled this screen previously.

This format gives the advantage of a wider format photo (even a panoramic or letter box).

But; This means that the largest a 4:3 format picture can be on this screen is 1440x1080, only 75% of the available projectable area.

This affects the portrait image most though as it can now only be 1080 pixels high, only 42% of the projectable area.

It's useful to note that although this resolution has become popular, this Full HD resolution is already being superseded by the newer Ultra HD/4K etc formats even for TVs.

For both **16:9** and **16:10** we have shown the biggest size that pictures can be projected within the resolutions set on the projector (shown as a 'grid').

For the advantage of being able to project a wider image comes the trade-off, that 4:3 format pictures become much smaller. This particularly affects the 'portrait' images that are already a much smaller image on the screen even at 4:3. A summary is shown below -

> **At 4:3** - 1400x1050 or 1600x1200 a portrait image is only 56% of the available area (Currently).
> A landscape format picture can use 100% of the available area (Currently).
> **At 16:10** - 1900x1200 a portrait image is only 47% of the available area.
> A 4:3 landscape image is only 83% of the available area.
> **At 16.9** - 1920x1080 a portrait image is only 42% of the available area.
> A 4:3 landscape format picture can use only 75% of the available area.

An insight into different Resolutions

Obviously the smaller images (e.g. 1024x768) are also going to appear even smaller than they were shown on the 4:3 resolutions above.

There are other formats available to us, but these three formats are the only ones currently listed on most Projectors and Laptops. Some software requires to project at the projector resolution, or it will distort the picture.

The NEW Canon Projectors now being used by the PAGB require us to use these formats to enable us to use all of the settings available to us. For example: we require to use these formats to use the tilt shift lens facility to its full advantage.

Screen Size - To ensure our images are projected physically as big as they are at present – with these **16:9** and **16:10** proportions, our only other option would be to consider having a different format of screen.
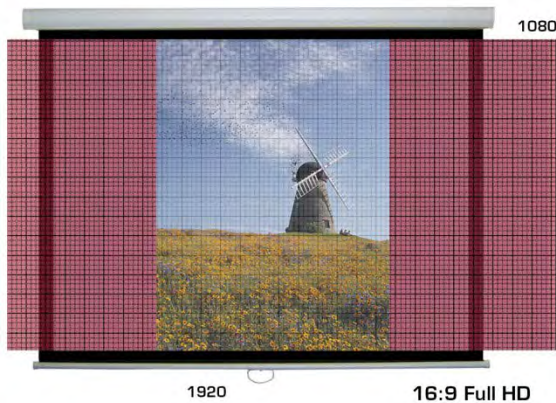
The image on the left shows how much bigger this screen would have to be to fill the screen with a portrait image at 16:9 (image area 'grid' shown in red).
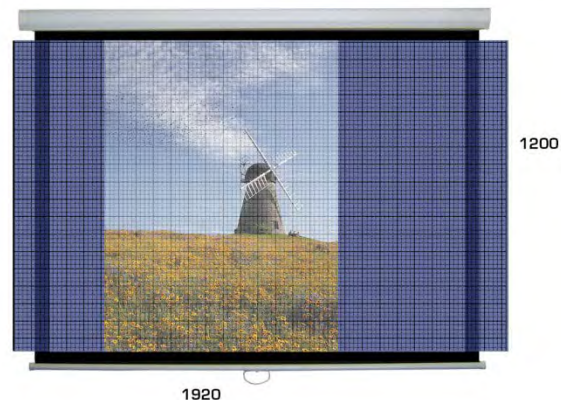
In this image on the right, the 16:10 format image 'grid' is shown, this time in blue, showing a portrait image filling the screen. This should give a guide to how much wider the screen has to be.

The Size of Room will dictate the physical size of screen that can be used.

This is not a problem at Warwick where there is plenty space.

But; at an APM Judging where space is already very tight this would be difficult to accommodate. Bear in mind that it's not only the physical size of the screen you have to consider but also that your Judges will also need to sit further back from the larger screen so they can appreciate the whole picture.

8' Screens are the standard requirement for the APM's at the moment which already causes a problem to accommodate, whereas the Championships can cope with much bigger.

Note – Remember that as you choose bigger resolutions – you will also have to accommodate bigger file sizes. The following are meant as a very rough guide –

1400x1050   4 Mb;   1920x1080   6Mb;   1600x1200   5.5Mb;   1920x1200   6.5Mb