

How to get and use the free 10m NDVI maps through Datafarming.

Go to datafarming.com.au



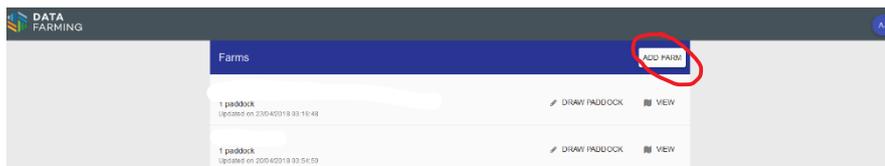
Click:
ACCESS DATA



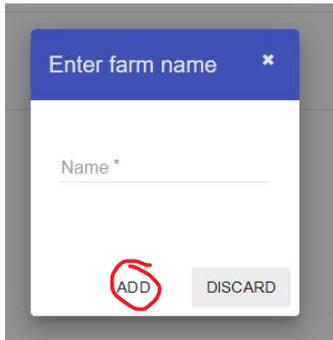
Click:
LOGIN



Sign in first time with your email and password, next times click:
LOG IN



First time, you need to 'ADD FARM', later the paddocks you draw will be added to the list, and you can DRAW PADDOCKS or just VIEW



When you click ADD FARM, this box appears. Enter the name you want, then click:

ADD

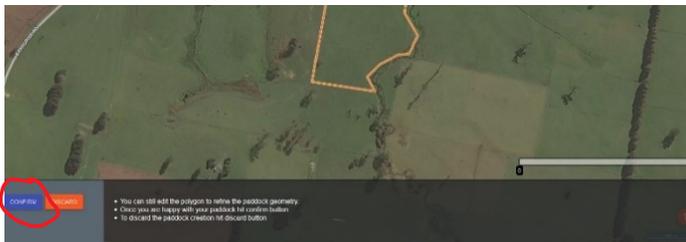
Your newly named farm will appear at the top of the list. Then click DRAW Paddock.



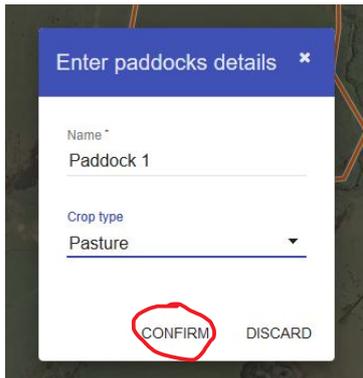
The map will appear. Zoom to the location you want an image of. Either search using your address or use the mouse to zoom and scroll around the map.



When you've found the right location, draw the area you want with the mouse. Click around the corners, then double-click when finished.



When you're happy with the border you drew, click CONFIRM



This box appears. Enter the 'paddock name' and select crop type from the drop-down menu, then click CONFIRM.

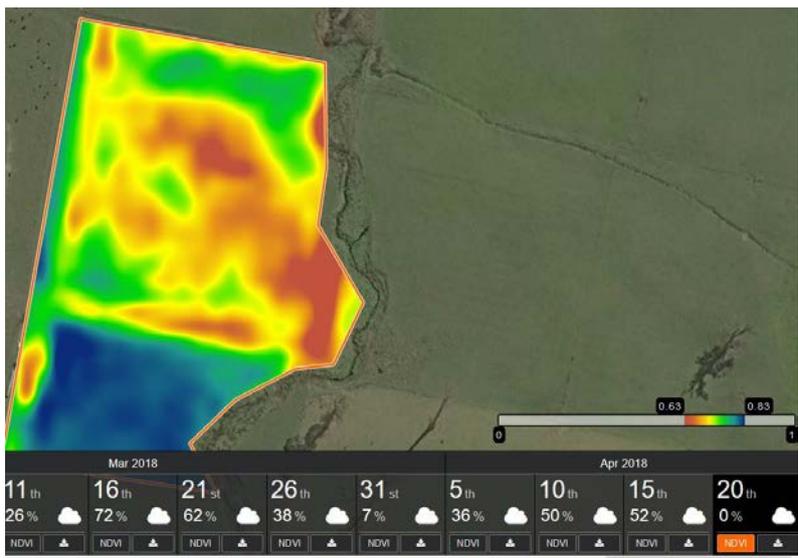


0% cloud this day

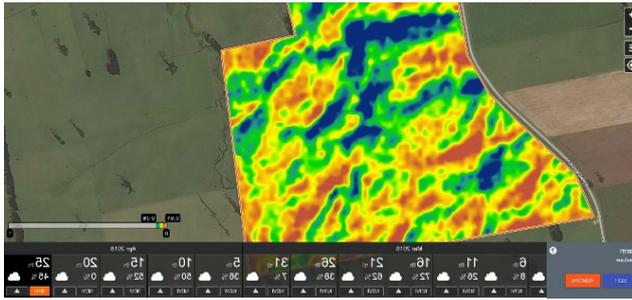
Now the dates of images appear at the bottom. *Choose the date you want and click NDVI to display the image. It's best to pick dates with low levels of cloud cover.*

You can click the cloud icon for a date and see if clouds were covering your farm when the image was taken. If no clouds or cloud shadows cover your farm the image will be ok, but the photosynthesis will show up as slower because it was a cloudy day.

If your farm/paddock was covered by cloud or cloud shadow when the image was taken, the image will be useless.



Now you have your NDVI image for a particular date. In this example, you can see the difference between paddocks (recently sown pasture in the northern paddock means lower NDVI because small plants and some bare ground). At 0.83, parts of the southern paddock are growing quickly (photosynthesising intensely).



This example (left) is more of the same farm, but on a day with 45% cloud cover. As you can see, no details of the farm are visible, no paddock boundaries or drainage lines. The scale is 0.01 to 0.06 (all bare ground). This shows that images from cloudy days can be misleading.

NDVI fundamentals

Normalised Difference Vegetation Index was developed by NASA in the 1970s for mapping vegetation on Earth from satellites. Modern satellites can give high resolution images (for various prices) and NDVI images can also be taken by drones.

NDVI is a calculation done on the different levels of RED light vs INFRA-RED light reflected off the Earth. Actively growing plants absorb red light and reflect infra-red light, so this difference can be used to map plant growth and health.

The advantage of this is you can see the health and growth of your whole farm in a few minutes at a computer, in a way you can't see with your own eyes. Changes in plant health (such as waterlogging, disease, pests) tend to appear in NDVI before they appear to us.

So, if a potato crop shows good plant health in one week, and next week's NDVI image shows some parts of the paddock with lower NDVI, something's wrong and you can see where to check. Or if a spot has higher NDVI, maybe that's a weed problem.

Water will show up with very low NDVI ratings, similar to bare ground. This makes NDVI difficult to use for flood-irrigated crops such as rice.

IMPORTANT THINGS TO REMEMBER WHEN USING NDVI IMAGES

It's vital to look at the scale (on the bottom right of the screen). This tells you what the colours mean for each 10-metre pixel.

The scale goes from 0 to 1. Plants in the pixel area will give a number between 0.3 (barely photosynthesising) to 0.86 (photosynthesising as fast as possible). Very low numbers (like 0.1 or 0.2) usually indicate bare ground.

So, a red colour that means 0.6 is much better than a red colour which means 0.4. *You have to relate the colours to the scale.* The higher the number, the faster the plants in that 10m pixel were photosynthesising (growing) that day. That's if there is full live-plant ground-cover. One small plant growing rapidly in a 10m pixel of bare ground will not record a high figure, the whole pixel will be 99% bare ground.

In the example in this guide, red is 0.63 and blue is 0.83. So while the image maps higher and lower numbers, the low end of the scale (0.63) is still photosynthesising fairly well that day.

Now that you have your image, and know what it means, you should understand it won't tell you *why* areas are photosynthesising faster or slower. If you want to know why areas are higher or lower, you might need to go and look in the paddock, dig a hole or take soil tests etc. Differences in NDVI could be weeds, water stress, disease, patches of poorer soil or more.

Also, these are 10 metre pixels. Higher resolution images may be available as different products for cost from various providers.

Adrian James
NRM North, June 2018
ajames@nrmnorth.org.au

