

Satamap shifts to global platform with new features

■ By Ben Boughton

SATAMAP has been available to agronomists and growers since 2014. Since then there has been steady user adoption favoring the unrivaled simplicity to access up to date vegetation data. In April-May 2016 *The Australian Cottongrower* magazine published an article 'Satamap makes sense of sensing technologies' which outlined how Satamap was used over the 2015–16 cotton season which included:

- Variations in watering efficiency;
- Waterlogging;
- Hail, spray drift and residual herbicide damage;
- Pix decisions;
- Disease;
- Defoliation dates; and,
- Yield predictions.

In August 2017 Satamap underwent a significant platform upgrade which added some exciting new features. These include:

Global access

Users can now subscribe to any portion of the earth, or all of it. Imagery is all processed on the fly which means there is no waiting time either. Once you sign up and select your region the imagery is available instantly – often back to 2013.

Three colour scales

Even though the Satamap Vegetation Index (SVI) generally shows more detail in high biomass cotton crops than the traditional NDVI, we did find that the colour scale would sometimes saturate in mid to late season irrigated crops. There are now a high, equal and low SVI scales.

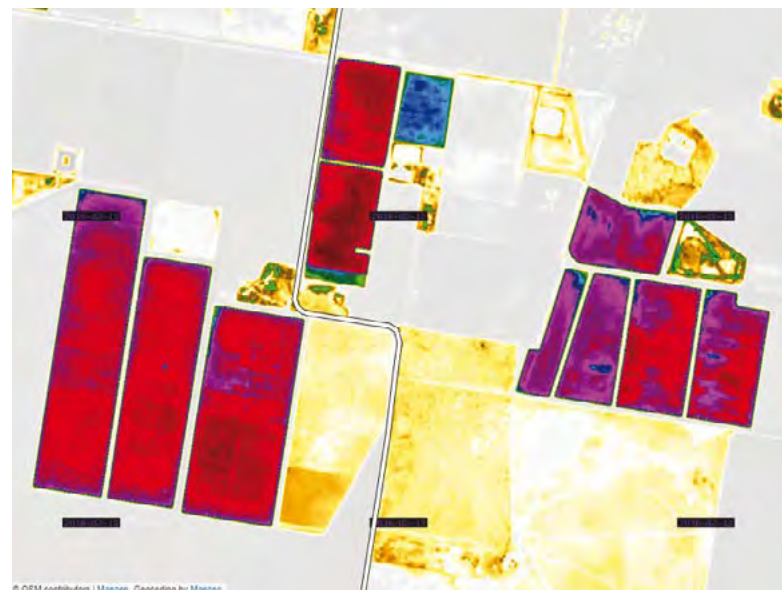
The high and low scales give bias to high and low biomass crop types respectively and the equal scale is similar to the original Satamap colour scale with a linear distribution along the colour ramp. See Figure 1.

Faster loading times

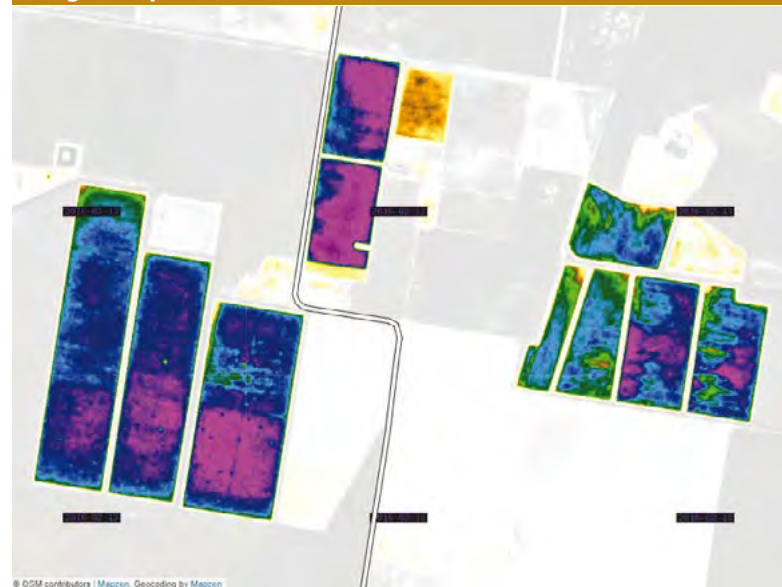
The new Satamap Global platform is a complete reboot and we have significantly reduced loading times by beefing up the server-side processing.

New grower subscriptions and better pricing for agronomists

One issue that many people kept coming back to us about was wanting a smaller subscription that offered better value for money for individual producers. Satamap now offers a solution to this which is a \$220 per year subscription which gives a 50 km radius around a central point. There is still no need to import or draw paddock boundaries. When signing up, just click on a map at the centre of the farm and you're good to go.

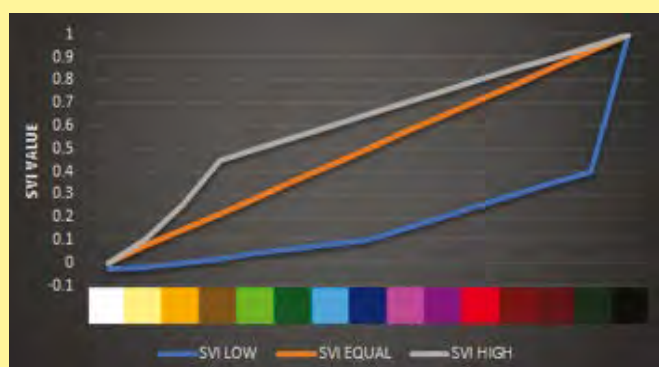


Imagery of cotton fields near Narrabri on February 13, 2016 using SVI Equal.



Imagery on same date as above using SVI High which exposes more variability in crop.

FIGURE 1: Satamap vegetation index legend chart





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A screenshot from the Satamap signup process. The white square is the central point and blue circle shows region covered by 50 km radius which is \$220 per year.

In addition, we have moved away from the 'tile' type system for agronomists and large producers as well. It is also the more flexible central point and radius system. A standard size available online is 150 km radius for \$550 per year. Of course, we offer, all sorts of plans and often group together a whole organisations agronomists into one bundle but give them each individual access.

More frequent imagery

Last year we offered the Landsat 8 (every 16 days) and Sentinel 2 (every 10 days over most areas). Now the EU Space Agency has

launched a second Sentinel 2 satellite. This doubles the amount of Sentinel 2 imagery and reduced capture interval down to five days in some areas. Landsat 8 is still a valuable and reliable source of data. NASA is currently planning to launch Landsat 9 in 2020.

Large scale imagery

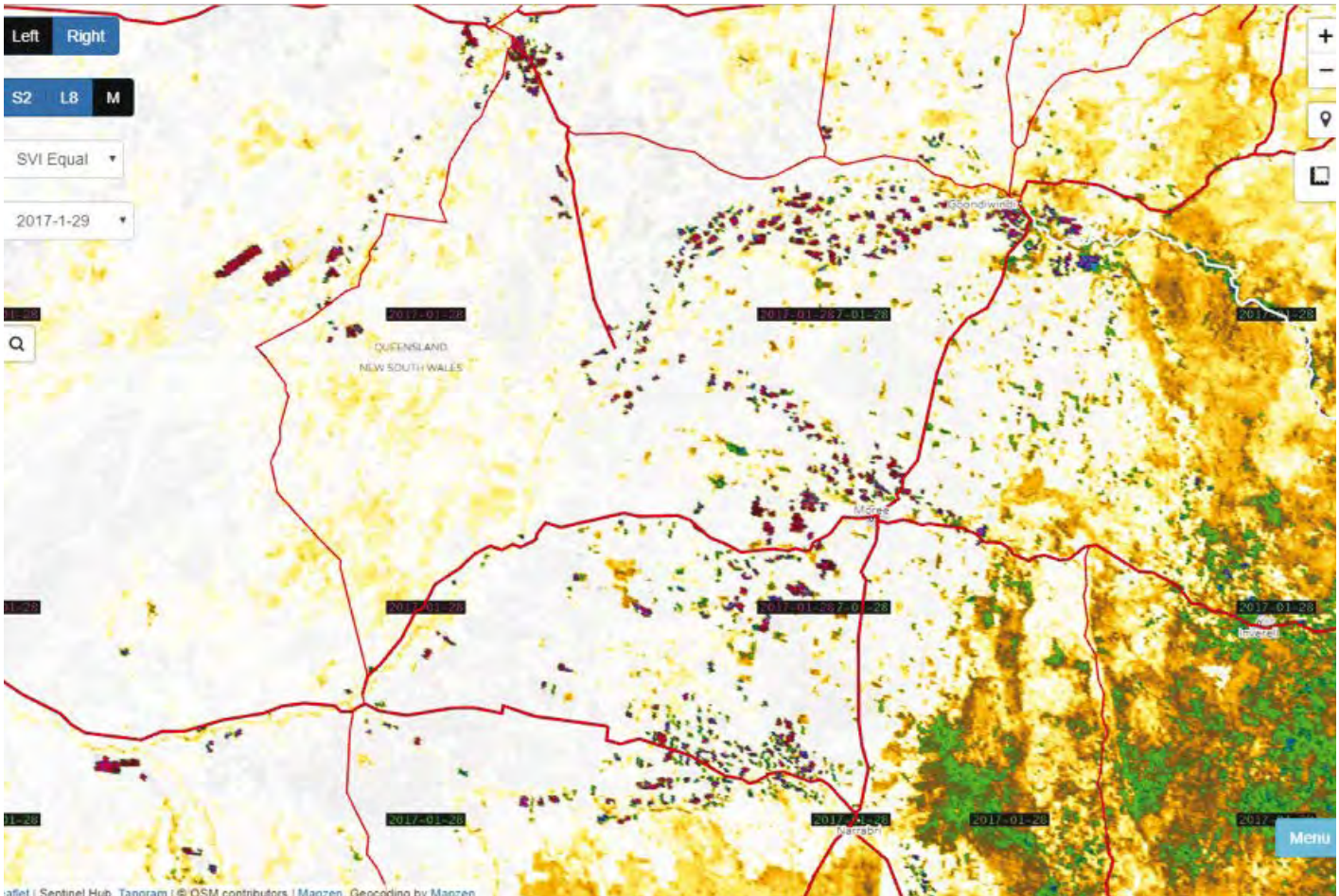
We have added a third satellite imagery source: MODIS. This is a low spatial resolution but captures imagery every one to two days. These daily images are combined to create cloud free 16 day averages. This imagery is great for assessing whole districts or even countries.

A platform to build a future on

Since the new Satamap Global platform processes all imagery on-the-fly it makes it extremely dynamic and expandable. We are currently working on assessing the value of several other data types such as Synthetic Aperture Radar (SAR) to see if it has value for agriculture. SAR is an active sensor which is not affected by cloud but provides different information to typical optical sensors like those on Landsat 8 and Sentinel 2.

The data responds more to attributes such as soil moisture and ground surface texture rather than visual or biomass data. An especially good use case could be mapping flood water on cloudy days.

In addition, we are currently evaluating the cost-benefit of commercial providers to see if the Satamap platform could be improved with premium image sources that are improved resolution and/or decreased time between capture but consequently cost more to deliver.



MODIS imagery with SVI Equal applied captured around January 28, 2017 shows clearly areas of irrigated crops for NSW/ Queensland border and southern cotton growing region.