



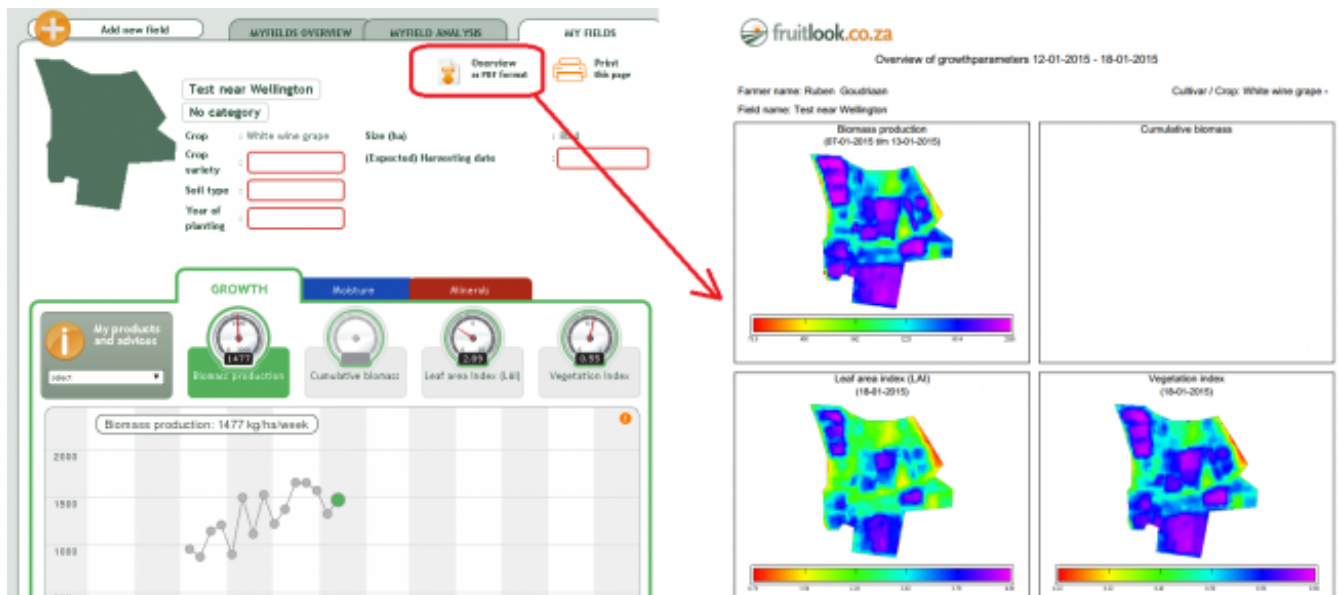
FruitLook February 2015: Observe Your Block Development

Dear Mr. Doe,

The FruitLook newsletter covers the development of new website features, FruitLook related news in the media and new applications of FruitLook data in farming. Sometimes however it is good to reflect on what's already available for the user. In this newsletter we discuss a tool to create concise week reports of your blocks. Furthermore we take a close look at the Biomass Production parameter.

FruitLook Website: Block Week Report Generation: Many things influence your crop's growth. Some of these are captured within the FruitLook parameters, like water stress and nitrogen content. It's a combination of all these factors which result in your crop production. In FruitLook there is an easy way to depict, week-by-week, a concise overview describing your block development. This overview can be used to inspect how block water status, growth and nitrogen interrelate to each other.

Instead of having to click through all data products, in the MyFields-page the "Overview as PDF format"-button generates an automatic week report depicting all FruitLook data products. In the picture below an example is provided. Hence, it provides an easy way for you to inspect multiple aspects of your block/farm every week!



FruitLook Data Validation in Wineland Magazine: An article describing FruitLook data validation, within the context of monitoring growth and water status of wine grape vineyards is published in the February edition of Wineland magazine (click [HERE](#) for the online issue: the article can be found from page 86 to 92). This article describes the onset of a collaborative project launched to integrate satellite and field data of grapevine growth and water status with the purpose of validating currently available products. The agreement between evapotranspiration, biomass production and evapotranspiration deficit products from FruitLook and field measurements was investigated. The article describes the results of this quantitative and qualitative assessment. A next step would be the integration of spatial FruitLook data with field data to stimulate the inclusion of FruitLook in farm management even further.

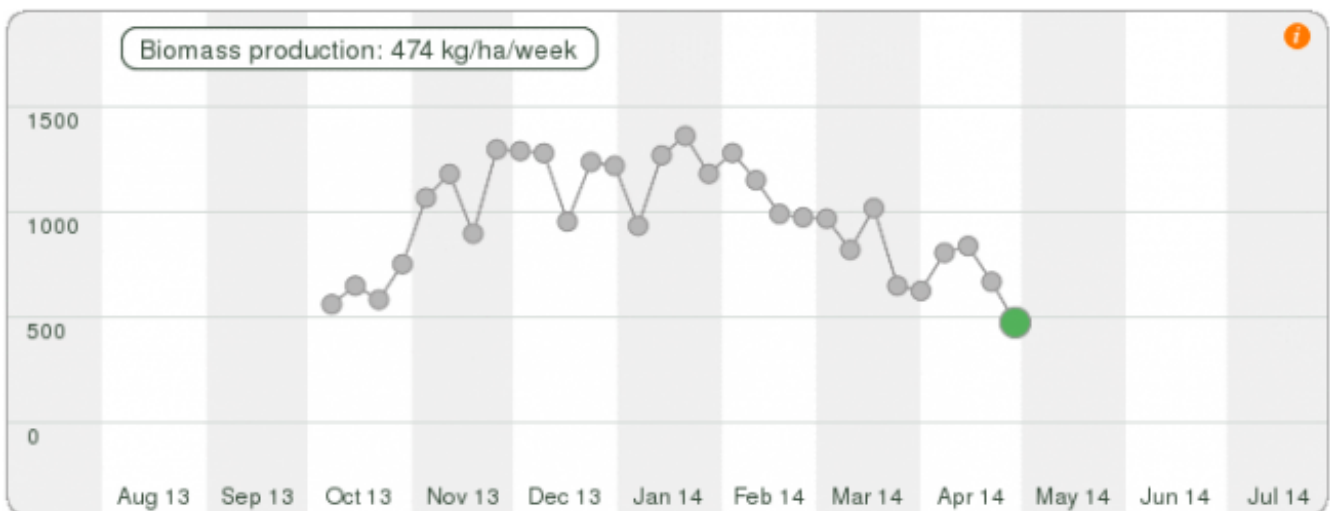
FruitLook Parameter Discussion: Biomass Production: In this newsletter topic a FruitLook parameter is scrutinized. Three questions are covered: 1) What is it?, 2) What can you expect?, 3) How can you use it? It is important to note that although we will describe the data products separately, they are related and of influence to each other. For example, a strong increase in evapotranspiration deficit will lead to a reduction in biomass production due to water stress.

The [January 2015 newsletter](#) focused on the Vegetation Index. This month we focus on the **Biomass Production:**

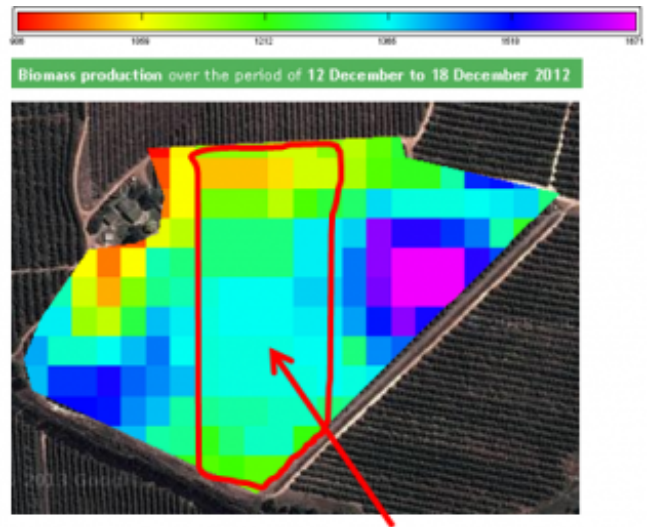
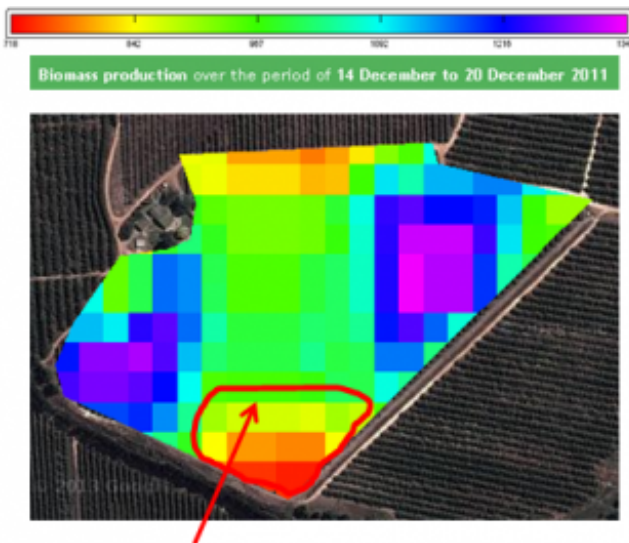
Biomass Production: What is it? The Biomass Production is the total dry matter increase of your crop in kg/ha/week. The biomass growth includes roots, shoots, fruits, twigs, leaves and all in between (including cover crop). It is strongly influenced by crop management and condition, as well as climatic circumstances. The Biomass Production data is delivered every Thursday and describes your crop's growth during the previous week. It does NOT represent the total accumulated biomass on your field. However, you can calculate the total biomass produced during the season by summing all weekly values.

What can you expect? The Biomass Production can vary between no production all the way up to 2,500 kg/ha/week. Commonly values for deciduous fruits grown in the Western Cape was found to fluctuate between 500 and 1,500 kg/ha/week. Younger crops will produce less biomass than full bearing crops. The Biomass Production is normally lower at the beginning and end of the season: at the beginning of the season the crop is not yet fully developed. At the end of the season the leaves start colouring, chlorophyll breaks down and the fruit crop enters a period of dormancy. Climatic conditions are also of influence: in the midst of summer solar energy, used for photosynthesis, is more abundant than in spring and fall.

A typical Biomass Production curve is depicted below. Small variations in production from week-to-week are visible. These are most likely caused by variation in meteorological conditions. For example, during a cloudy week less energy for photosynthesis is available than in a week full of sunshine. This will cause the Biomass Production to drop. The same holds for temperature: very high or very low temperatures will cause plant stress and limit crop growth.



How can you use it? Spatial Overview: the Biomass Production of a single management block should have a homogeneous outlook throughout the season. Strong variation in a block might indicate part of your block is responding less well to your block management. This could for example be due to underlying variation in soil conditions. In-season variation in Biomass Production can also be caused by hazards like disease or pests. The Biomass Production can be used to delineate areas affected by pests. An example of the detection, delineation and result of treatment of nematode infection in an apple orchard is depicted below.

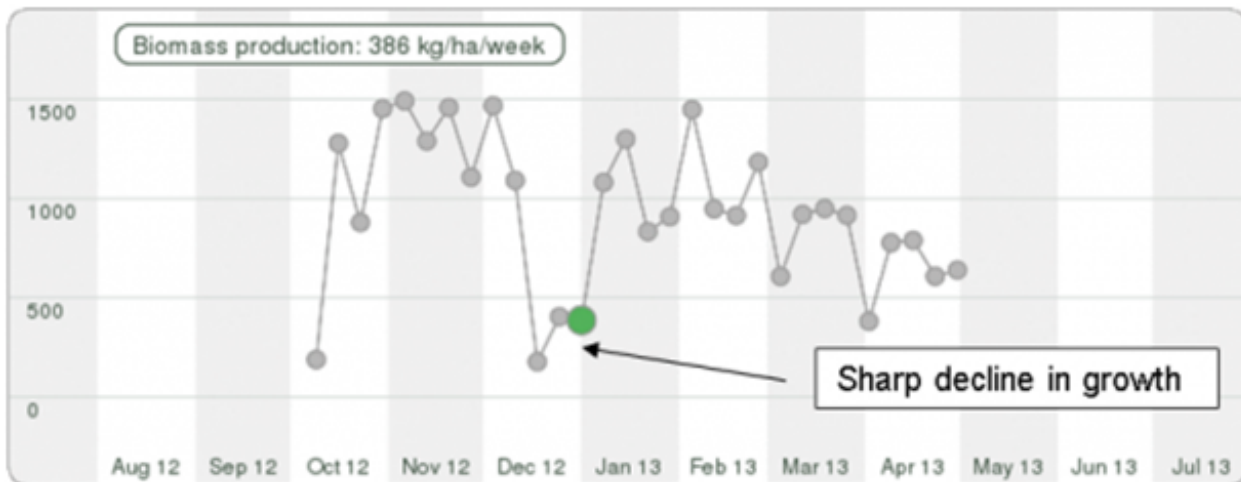


- 1) Identification of area with poorer biomass growth
- 2) Strategic soil sampling of these areas to analyse for nematode presence
- 3) Treatment of affected areas only

Block more uniform after treatment

Another application is to use the Biomass Production in combination with the Evapotranspiration Deficit for the placement of soil moisture probes. By evaluation of Biomass Production and ET Deficit time series the best spots to place soil moisture probes can be determined. An example of this is included in the FruitLook Poster (click [HERE](#)).

Temporal Overview: You can use the temporal profile to easily see if your blocks show continuous development throughout the growth season. A one-week drop in Biomass Production could be caused by meteorological conditions. However, if a strong prolonged decline is visible possibly something is going amiss in your block. In the example below Biomass Production dropped drastically during the cell division stage of a pear block, causing severe yield reduction. After investigating both crop water requirement calculations and the FruitLook ET Deficit data proved that the irrigation system could not deliver sufficient water to satisfy the crop requirement during this stage in the season. Hence, based on this observation the irrigation management was improved.



A more general insight in the biomass production parameter is provided [HERE](#).

If you have any remarks/questions about this newsletter or FruitLook in general, feel free to contact us via info@fruitlook.co.za. See you soon on FruitLook!

Best regards,

The FruitLook Team



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