



We are IrriWatch

## The root of effective irrigation

We help farmers to monitor their crops and soil and irrigate effectively



### What does IrriWatch offer?

Using satellite-based remote sensing technology, IrriWatch helps farmers and their irrigators to optimize irrigation water applications and improve their production in a world of dynamical weather, soil and crop processes.

The soil moisture, evapotranspiration, crop production and many additional parameters of every 10 m x 10 m pixel of user-defined fields are provided daily for capturing the variabilities of key processes in space and time. Our technology senses soil moisture content and crop stress and provides irrigation scheduling advice for achieving optimum production. We look via the leaves into the root zone. IrriWatch provides every morning a daily irrigation advice to growers. Fields requiring irrigation are ranked based on the priority to need water.


An irrigation planner is provided daily to advise farmers on the optimal amounts of irrigation their field require. For the fields that have adequate soil moisture today, the date of next irrigation is indicated based on the current soil moisture, crop development and forecasted weather.

For better understanding the impact of water and weather conditions, we also show the daily dry matter crop production and many other parameters that help farmers monitor their fields on daily basis and help them make informed decisions.

IrriWatch provides different packages (dryland, premium and climate smart packages) focusing on four pillars: irrigation, crop production, soil health and climate.

### IrriWatch Pillars


pillor 1



**IRRIGATION**

SOIL MOISTURE | IRRIGATION PLANNER | & MORE

pillor 2



**CROP**

DRY MATTER PRODUCTION | VEGETATION COVER | & MORE


pillor 3



**SOIL HEALTH**

SOIL TEMPERATURE | NET CARBON SUPPLY | & MORE

pillor 4



**CLIMATE**

AIR TEMPERATURE | MIDDAY AIR COOLING | & MORE

IrriWatch

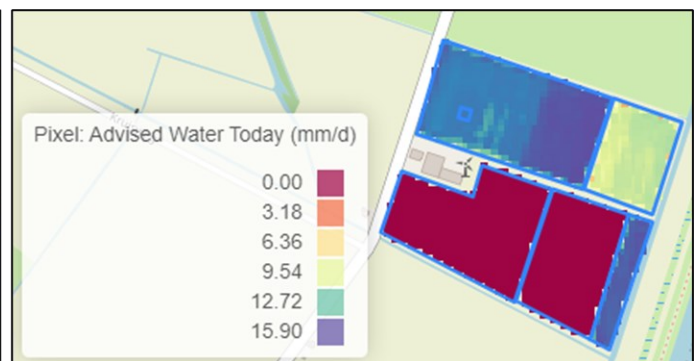
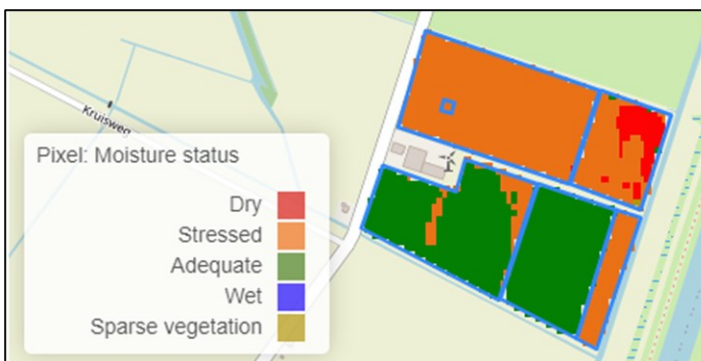




## The IrriWatch App for Farmers

IrriWatch users can view their delineated fields with a simple App. The free IrriWatch App can be downloaded from PlayStore or AppStore. The App displays all individual 10 m x 10 m pixels of moisture status with a simple traffic light system where: red indicates that the fields are too dry; orange indicates that the crops started being stressed and an irrigation amount is then advised; green indicates adequate soil moisture and blue refers to over-irrigation.

Measuring suction pressure and soil moisture in the root zone using satellite images is the important basis. With information of every 10 m x 10 m it is possible to optimize the irrigation. Each field requires a specific amount of irrigation water, because the soil composition and processes such as evaporation and percolation are different. We provide daily irrigation advice on the amount of water each field requires.



## The IrriWatch Web Application

The IrriWatch web-based application is designed for family farms, managers of large commercial farms and public agencies responsible for irrigation schemes. It is intended to support timely irrigation priority setting and water distribution decisions. Everybody wants to save water, but how to do that under practical conditions and safeguard return on investment? IrriWatch provides daily guidance in key on-farm process such as irrigation, fertilizers and crop production. Daily satellite images of crop temperature capture the true field conditions.

In some irrigation projects, seasonal or annual volumetric water allocations are made to individual land owners. By monitoring cumulative water consumption from the start of the water allocation period such as "ET from Applied Water", areas with volumetric

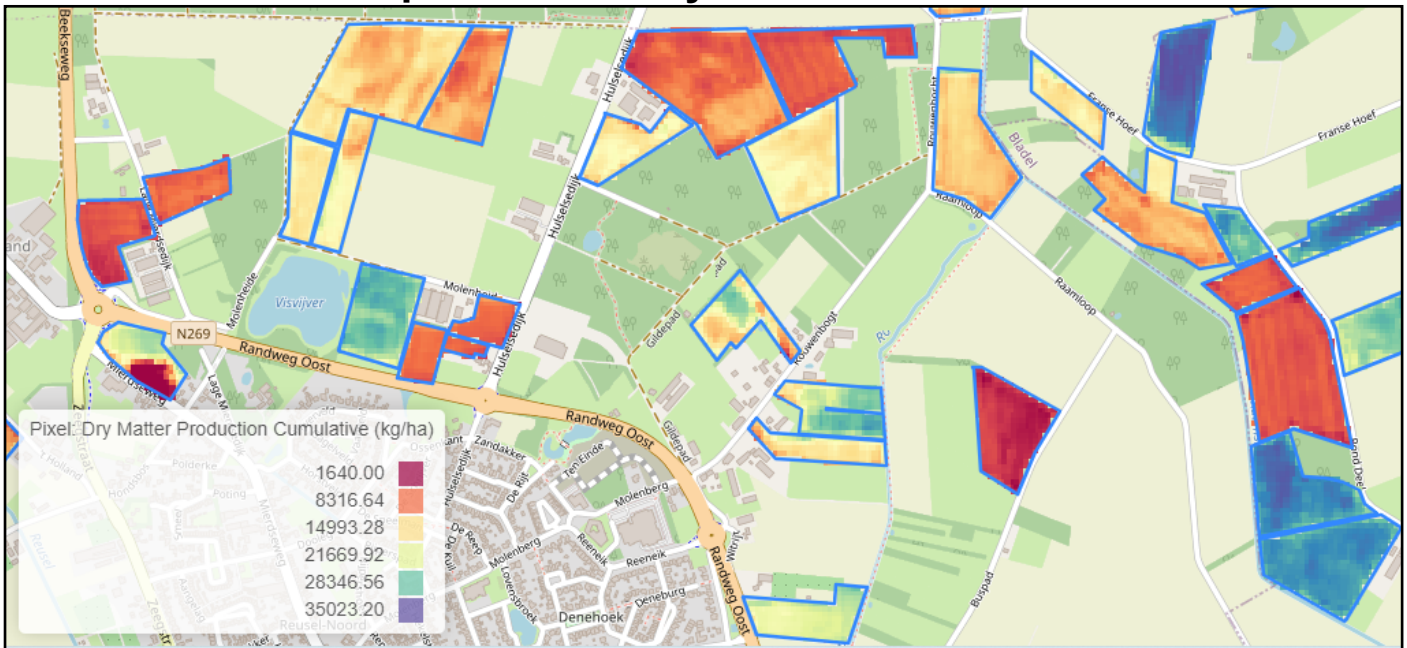
consumption exceeding their allocation can be identified and appropriate enforcement actions taken to ensure equitability among water users, and for environmental protection.

Another important parameters that IrriWatch calculates in the Total Dry Matter production. The increase in the Total Dry Matter production can be determined from the crop evapotranspiration and photosynthesis (the intake of CO<sub>2</sub>). This is the daily growth of the entire plant, including above and below ground parts (fruit, leaf, stem, trunk, root). It is also measured based on crop temperature, the colder the leaves, the faster the growth.

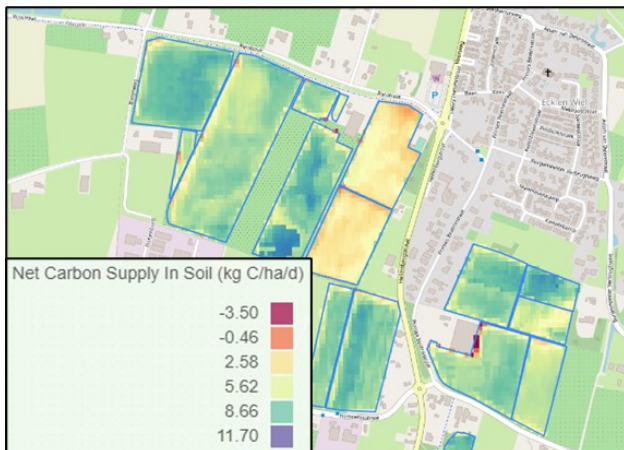
This Total Dry Matter Production is an indication of how much yield is expected. Farmers can estimate their yields using standard harvest indices.



## Example of Total Dry Matter Production



Total dry Matter production in kg/ha of corn, sugar beet and potato fields in the Netherlands on Sep 2



The more dry matter production there is in a season, the more carbon (actually CO<sub>2</sub> from the air) is stored in the soil. Above and below ground crop residues undergo a humification process in the soil and turns them into soil organic matter. This is a gross supply of organic matter (together with some organic fertilizers). Part of it is decomposed and returns back gaseous into the atmosphere. Information about moisture and temperature is used to calculate the mineralization. The result is a net storage of carbon C in the soil and a higher organic matter content (%).

## What Kind of Subscriptions are Available?

### ◆ Premium Package

The premium package provides maps of soil water potential, soil moisture and ET values. There is information on daily crop production (water limited, water unlimited and attainable dry matter production). Also, information on

irrigation performance is provided, including equitability, adequacy, reliability and productivity. With this package, water management can be taken to levels never before possible.

### ◆ Dryland Package

The dryland package is meant for rainfed farmers that have no capability of irrigation water supply. Yet, they want to know their crop production and the impact of droughts. Information of soil moisture in the root zone

and crop fertilizer status are essential for making decisions on (organic) fertilizer applications and groundwater management. For dairy farming, moments of cutting can be better determined.







## ◆ Climate Smart Package

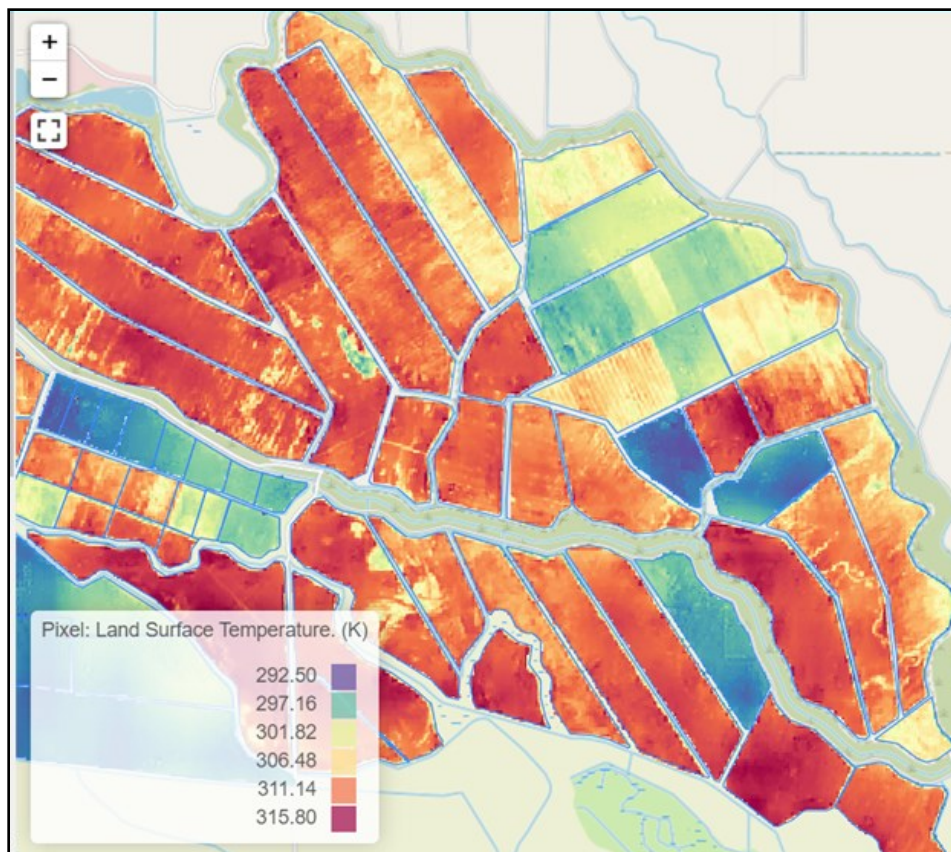
The Climate Smart package will be available in 2022 and it is meant farmers focusing on sustainability, regenerative agriculture and climate smart agriculture in general. In addition to the irrigation and crop production

parameters provided in the premium package, this packages provides information about soil temperature, net carbon sequestration, leaf nitrogen, mid-day air cooling, water productivity and many other parameters.

## How Does IrriWatch Measure the Process?

The primary engine of IrriWatch is the Surface Energy Balance Algorithm for Land (SEBAL) mathematical algorithm that was developed by Prof. Wim Bastiaanssen (CEO of IrriWatch). SEBAL Algorithm has been tested, validated

and improved over the past 30 years to convert satellite measurements of crop temperature, vegetation cover, solar radiation and other crop parameters into actual crop evapotranspiration (ET-flux) rate and sap-flow (T-flux).



◆ Step into our World today by signing up to IrriWatch Portal at [portal.irriwatch.com](http://portal.irriwatch.com)



- ◆ Access Open Demo fields for free to explore more our parameters and services
- ◆ Sign up your fields today and start monitoring your fields tomorrow
- ◆ Get your 14-days free trial

*For help with signing up fields, subscriptions and for more information, please contact us by sending an email to: [info@irriwatch.com](mailto:info@irriwatch.com)*



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