LIGHT IS LIFE

On the edge of biotech innovation

igrox®
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igrox® designs and produces LED technology for cultivation in controlled environment.

Our solutions contribute to elevate yield and enhance quality of crops while ensuring sustainability through our cutting edge technology.

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KNOW HOW

igrox® LED technology comes from the constant **R&D activity of our team** of biologists, agronomists and engineers.

"... high yields with the lowest possible energy consumption."

The spectral composition of light influences all the processes taking place during the life cycle of the plant. This is why the spectrum of light is fundamental for the morphology and well-being of the plant.

In igrox® we create spectra that adapt to the specific needs of variety to grow. Our systems have the highest available efficiency on the market to ensure high yields with the lowest possible energy consumption.

We are at the forefront of the study and application of specific spectra to control morphology, vegetative or generative growth, rooting, brachization and all the biological and technological aspects that our clients consider useful for their entrepreneurial success in hi-tech agriculture.

"...study and application of specific spectra..."

Science and technology support our daily job and allow our customers to transform agricultural productions, dependent from uncontrolled variables, into stable, fully controlled productions, similar to industrial factories.

"...transform agricultural productions into fully controlled productions..."

The visible light in the active photosynthetic region (PAR), between 400 nm and 700 nm, provides energy for the photosynthetic process and plant growth, transforming water and carbon dioxide into sugars and oxygen.

igrox® IS PART OF **TCI** GROUP

TCI is an innovative company focused on customer needs and market trends offering energy saving solutions. **TCI** supplies its customers with LED DRIVERS, IoT and WIRELESS CONTROL SYSTEMS, LED MODULES, LED's. COB's, LENSES and CUSTOMIZED SOLUTIONS.

VERTICALIZATION AS A SUCCESS FACTOR

We internally design, manufacture and assemble each component of igrox® systems:

- **MCPCB LED**
- **Electronic drivers**
- **Plastic moldings**

The group verticalization guarantees our customers to obtain the best performance at the best available price - quality ratio. A complete control over quality and stability of supply is fundamental to satisfy our customers.

Our headquarter

igrox® is located in Saronno, inside TCI buildings that are spread over an area of more than 100,000 square meters.

Employees

TCI GROUP currently counts on the professionalism of more than **2000 people**.

Active customers

Over 10,000 customers believed and believe in the entrepreneurial reality of the group.

Product engineering

We have a team of **+50 engineers** to support the electronic and mechanical development of each of our products.

Biology and Agronomy

We firmly believe in the value of research. Researchers and PhD in biology and agronomy sit on our board, collaborate with us through university collaborations and are in charge of the experimental activity that we carry out day by day.

RESEARCH + DEVELOPMENT = GROWTH

"...we develop innovative and sustainable solutions..."

The greatest assets we manage in igrox® are the people, our collaborators. With professionalism and tenacity they contribute to increasing knowledge and skills of the company.

Thanks to daily research activity in universities and on the field, we develop innovative and sustainable solutions.

Every day we make our contribution to advancement in the field of biotechnology applied to cultivation.

Active researches

SPECTRAL OPTIMIZATION SALAD CULTIVATION IN VERTICAL FARMING

Study followed internally by our Chief Scientific Officer in collaboration with Kilometro Verde S.arl.

OPTIMIZATION OF LIGHTING SOLUTIONS FOR MICROALGAE CULTIVATION

Study in collaboration with Micro Bio Technology srl and the University of Verona.

MICROGREENS CULTIVATION

Study followed internally by our Chief Scientific Officer

A WIDE RANGE OF SPECTRA FOR YOUR PLANTS

igrox® develops specific spectra for plant growth in a controlled environment both for applications as supplemental artificial light or as sole source of light. Our spectra are designed for several purpose, to optimize crop morphology, to get a fast growth, to improve yield for different environments and applications: technological greenhouses, indoor and vertical farms.

"...optimize crop morphology, get a fastgrowth, improve yield ..."

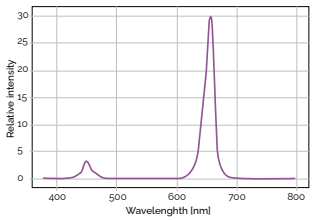
Supplemental artificial light

In applications with sunlight, the function of artificial lighting is essentially a photosynthetic booster when sunlight is not enough.

The artificial light emission must be concentrated in the emission bands that maximize absorption by chlorophylls and ensure the maximum efficiency of photosynthesis.

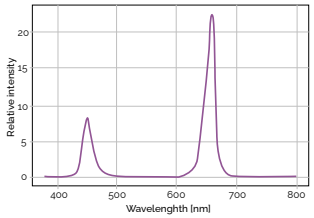
HRx

It's our spectrum for greenhouse operations with **high red emission**



HBx

It's our spectrum for greenhouse operations with **high blue emission**

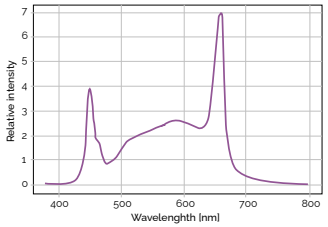


Sole source of light

In absence of sunlight, the spectrum used for cultivation must be more extended and also contain emission bands that **stimulate all the photosynthetic pigments**, essentials for the correct development of the plant.

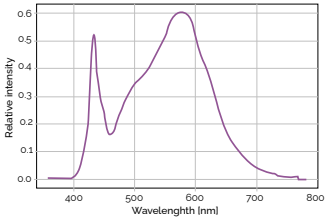
BRx

It's our broad spectrum studied for **indoor cultivation**



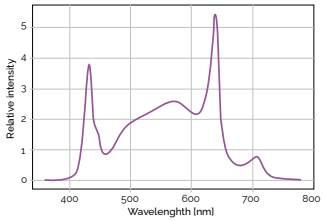
GHx

It's our broad spectrum for **graft healing and rootings**



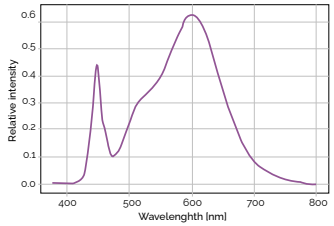
BFRx

It's our broad spectrum with **far red addition**



VFx

It's our broad spectrum for **general vertical farming operations**



HI TECH . HI YIELD.
ALL YEAR AROUND

ENERGY SAVING
Reduction of energy consumption thanks to high efficacy and lower HVAC costs

INCREASE IN LIGHT LEVEL - PPFD
Increased yield and faster growth

SUPERIOR UNIFORMITY
Increased yield and homogeneity in harvesting time

FASTER GROWTH
More harvesting cycle per year

BETTER QUALITY
Specific spectra enhance plant morphology and specific molecules content

SUCCESS CASES

Hydroponic greenhouses

The application of supplemental artificial lighting in hydroponic greenhouse operations is essential to ensure **stable yield and high production quality throughout the year**. Stability and quality guarantee the ability to effectively and continuously serve large-scale distribution.

GANDINI was the first Italian tomatoes producer to believe in igrox®, our cutting edge technology was selected among various competitors after tests in their greenhouses.

Today Gandini uses our **TRL LED** systems for the winter cycle, producing quality cherry tomatoes under the **Naturama®** brand and in constant quantities all year around.

Indoor cultivation of officinal plants

The **optimization of energy consumption** in indoor crops is essential for the sustainability of the business. igrox®, is committed to develop increasingly efficient and effective LED lighting systems. During the design stage of this project, The main target was to reduce energy consumption while **maintaining high yields and quality**. igrox®, TRS with BRx spectrum was the selected module of the lighting system. **Growth is faster**, yields per square meter has increased and electricity consumption for lighting and HVAC decreased.

Vertical farming

igrox®, **SCORPIO** technology was the choice behind one of the largest vertical farms in Europe. The ability to **change the spectrum according to the variety grown and the efficacy** of 3.6 umol / J (BPF at PCB level), the highest available on the market, were the main drivers of choice for our customer. igrox®,**SCORPIO** is an industrial grade fixture with high reliability standards and the highest efficacy on the market. In this vertical farm we have reached the record value of only 90W / m^2 for 250 umol / s / m^2 with our GLx and PLx spectra.

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