

NEWSLETTER

RELEASE N° 2



FEBRUARY 2020

Business Case: Lighting of the Chicua Birris Farm.

The company **FERRIVA** is focused on offering very high quality products and services with the aim of being able to offer solutions that contribute to extend the life of your projects using the right products for it: low power consumption, with high energy efficiency rates and a long life (100,000 hours) that allows the reduction of waste, collaborating with the environment by reducing the carbon footprint of the production system, such is the case of the use of LED lamps from the German manufacturer **SCHUCH**.



The success case was implemented at the **Chicua Birris Farm**, located on the slopes of the Irazú Volcano in Cartago, Costa Rica, the work was done specifically in the milking area.

Initial condition of the Farm before the change.

The original installation consisted of eight high density discharge mercury incandescent lamps model ED28, of which six lamps were located in the internal area and two others in the external areas, each with the following characteristics: 250W of consumption, 8000 working hours life time, 4750 lm, 19 lm/W efficiency and 3500 Kelvin color temperature.

SCHUCH® product

These luminaires provide us with 146 and 152 lm/W efficiency, the life span is 100,000 hours, their power is 50W and 25W, which makes for savings in energy consumption, as well as maintenance.

It has high resistance to impact and protection against the ingress of solids and liquids, which in our case is IP66.



Models: 59001 0002,
59001 0022,
59001 0028.

Lifetime: 100.000 hours
Input voltage: 220-240V
Frequency: 50-60Hz
Ra: >70
Over voltage resistance: 10kV
Color temperature: 4000K
Protection factor: IP66
Impact resistance: IK10

1- Improvement requirements:

- Reduction in consumption and electricity bills. Total consumption of 2000 W.
- Installation of equipment suitable for the working conditions, due to the cold weather of the site which can be around 3 to 6 degrees centigrade.
- Regain confidence and maintain milking hours. Damage to a light bulb means delays in normal work.
- Reduction of the actual replacement rate. The life time indicated by the manufacturer is 8000 hours.
- Reduction of costs and risks. the cost of maintenance.

Contact us

Call us if you would like more information about our products and services

(506) 8841-5559

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2- Propose solution:

- Replacement of incandescent bulbs with LED lamps with better performance than those installed.
- Reduction of the general consumption for lighting to 320W.
- Reduction in the number of LED lamps by maintaining the existing electrical installation, installing seven luminaires.
- Regain confidence in the functionality of the lighting system (IP65 and IP66).
- To eliminate the disadvantages of incandescent lamp breakage, the lamps have an impact-resistant safety glass cover (IK 10).
- Increased energy efficiency (132, 146 and 152 lm/W)
- Improved uniformity of light distribution.
- Improvement of the luminosity in the work areas, 45980lm in total.
- Reduced maintenance costs by replacing lamps, equipment with 100,000 hours of useful life.

3- Results obtained:

The implementation of the solution took place on July 2, 2019. The following graph shows the actual monthly consumption in KW/h, during 2019 before and after the implementation of the proposed solution, you can see that from August to December 2019, reflects a decrease in average consumption of approximately 380 KW/h, after the change of lamps in July.

As shown in the following graph, there was an unusual consumption of the whole farm during the month of June (due to maintenance work with welding equipment, as well as the installation of UV bulbs for heating calves under 3 months). It is not possible to discriminate consumption due to the lighting of the work areas, but, even so, total consumption decreased, which reflects the reality of the result due to the change made on the farm. In addition, there have been no additional maintenance or replacement costs during the six months since the installation of the SCHUCH solution. The next table summarizes the characteristics of both solutions.

SCHUCH® product

This luminaire provides us with an efficiency of 132 lm/W, the useful life is 100.000 hours, its power of 70W, makes a great energy saving, as well as maintenance.

It has a high resistance to impact and protection against the entrance of solids and liquids, which in our case is **IP66**.



Model: 48001 0002.

Lifetime:100.000 hours

Input voltage:220-240V

Frequency:50-60Hz

Ra:>70

Over voltage resistance: 10kV

Color temperature: 4000K

Protection factor: IP66

Impact resistance: IK08

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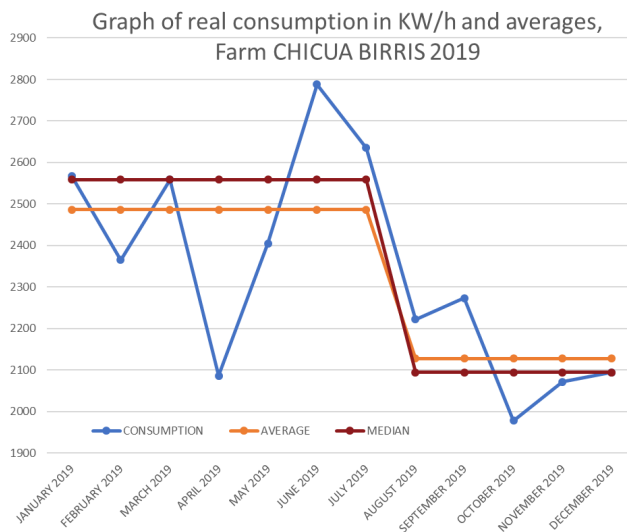
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Type of lamp	Color temperature in Kelvin	Installed power in Watts	Lifetime in hours	Number of lumens produced
Incandescent	3500K	2000W	8.000 hours	38.000 lm
	4000K	320W	100.000 hours	45.980 lm
SCHUCH LED	The color temperature was increased, which means 14,29% more white light	From the 2000W of initial installed power, it dropped to 16%. A saving of 84%	Of the 100% lifetime of 8000 hours, there is a 1250% improvement	More light with one less bulb because the solution uses seven lamps

SCHUCH® product



Inside right view with two 50W and 7290lm luminaires.



Aerial view shows the homogeneous distribution at floor and wall level.



Full view, you can see the uniformity of light on both sides of the installation with the four luminaires

The following images show different views of the entrance and milking area with the new lighting, these pictures were taken the same day of the installation, Tuesday July 2nd 2019 around 7pm.

Side view of entrance with a 25W and 3790lm luminaire.



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4- Conclusions:

Six months after the implementation of the proposal with **SCHUCH** products, the advantages, results and savings that the owners, the milking staff and the adequate care of the animals in production and breeding are getting are verified. This implementation returns real economic benefits by reducing the costs of maintenance and replacement of lights, in addition to the actual reduction in consumption and amount of the electric bill. This successful implementation by the company **FERRIVA** leads us to the following conclusions:

- Reduction of the real consumption, the **SCHUCH** solution is operating with 320W compared to the original 2000W, an actual reduction of consumption of 84%.
- Elimination of bulb replacement due to low temperatures, during the six months that the **FERRIVA** solution has been in operation the owner has not had to buy more mercury bulbs as replacements.
- Reduced maintenance cost, eliminated the need for revision of the lighting system, the wiring system works with less current consumption, no need to replace the porcelain bases.
- Regularization of milking times, delays in milking time due to the replacement of mercury bulbs before the start of milking in the early morning were eliminated.
- Solution life of 100,000 hours (45, 66 years), which will reduce waste production during that period. Compared to the luminaires used (3,65 years) an improvement of 12, 51 times the original theoretical condition was achieved.

- Greater uniformity of light distribution, by using equipment that certifies the form of light distribution and by placing it in the correct positions, areas of shadows were eliminated. The high IK impact capacity and IP tightness of our products eliminated the shadow work due to the breakage of mercury bulbs.
- Improvement in the intensity of the illumination, using high efficiency equipment, on average the **SCHUCH** solution delivers 143,69 lm/W, compared to the 19 lm/W of the original installation an improvement of 21% is achieved comparing the **FERRIVA** solution with the previous installation, if it is compared with the same amount of luminaires (only seven for each model) then the improvement is 38,59% using the **SCHUCH** equipment.

SCHUCH® product

This kind of solutions and advantages are offered by the company **FERRIVA** using equipment of very high quality, durability and design, supported by our European business partners, information that we gladly share with you on our website.

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