



City of Wayne Newsletter

City of Wayne
Utilities

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October

Energy-Wise Tip—Crittter Vision

For the last several years, most everyone has heard how light-emitting diodes (LEDs) save energy while illuminating the dark corners of our world. In December 2014, *Bloomberg News* forecasted that LEDs will power half of all residential lights by 2016 and more than 70 percent by 2020.

When the sun goes down, or we go indoors, we turn “on” the light switch and expect LEDs to quickly provide the light we need to see. But with Nebraska being one of the leading livestock producing states, have you ever considered how turning on lights can impact the animals we raise?

First, we need to consider how humans use light to see. Lighting “efficiency” is often measured in lumens-per-watt of electricity with lumens representing a quantity of light. This does not tell the whole story for animal producers because lumens represent effective light for the human eye, and the way humans and most animals process light, basically “see,” is quite different.

Humans’ eyes are tri-chromants with sensitivity to red, green, and blue parts of the visible spectrum. Our nighttime peak sensitivity is at 550 nm (green) in the spectrum and it diminishes significantly in the red and blue areas to the left and the right in the spectrum. Humans rely entirely on absorbing photons through the photo-pigments rhodopsin (rods), iodopsin (cones), and melanopsin located on the retina in the back of our eyes.

While we might assume barnyard animals see in a similar way, nothing could be farther from the truth. Consider domestic fowl, such as chickens, turkey, ducks and geese. These birds are quad-chromants. Like humans, they have a peak sensitivity to green at 550 nm. But unlike humans, they also have enhanced sensitivity to reds, blues, and ultraviolet (UV) light. In addition, they not only absorb photons into their retinas, but also through functional photoreceptors located in the pineal gland on top of the brain and through deep encephalic photoreceptors on the hypothalamus. In

some ways, you could say they have eyes on the back of their heads!

In addition, each color of light has a distinct effect on fowl physiology. Green light, for example, significantly increases growth rate at an early age by enhancing proliferation of skeletal muscle satellite cells. Blue light increases growth at a later age by elevating plasma androgens. Narrow-band blue light reduces locomotion. It also reduces their cannibalism rate at late age (especially in broiler chickens raised for human consumption). Together, green and blue light promote myofiber growth due to more effective stimulation of testosterone secretion.

Red light stimulates and promotes sexual activity and increases growth rates for chickens and turkeys at the beginning of the rearing period. It also increases locomotion, thereby minimizing leg disorders at the end of the rearing period. Furthermore, red light reduces the amount of feed consumption per egg laid with no differences in egg size, shell weight, shell thickness, or yolk and albumin weights while lengthening a laying hen’s peak production period.

And these light-impact “oddities” are not limited to our winged friends. For example, milk yield is substantially impacted by light used around dairy cows. Optimum production requires cows to be exposed to a full spectrum with adequate intensity. High pressure sodium fixtures provide high lumens-per-watt, but the light from these fixtures is biased towards longer wavelengths (yellows through reds) which cows cannot perceive. Fluorescent fixtures can provide ample effective light for dairy cattle. However, under cold conditions, light output of fluorescent fixtures can decrease by more than 40 percent and become inadequate simulation for the cow’s production.

Concerns with lighting in hog confinement operations are mostly focused on energy costs and how long the lamps or fixtures last before needing to be replaced. Con-

finement barns are power-washed several times a year, so protecting lighting fixtures against water ingress is essential. For these reasons, compact fluorescent lamps (CFLs) are usually installed in “jelly jar” screw-in fixtures. The problem is, the enclosed operating conditions heat up the CFL ballasts and drastically reduce their lifetimes. This presents a problem, because replacing light bulbs is daunting in a facility in which the floor may be grated and is probably slippery, and hogs wander around the base of the ladder.

Finally, artificial lighting can cause an interruption of circadian and estrus cycles in cattle and especially horses. Producers often regulate these cycles to their advantage by creating an “artificial day” by using lights inside barns. But swine, cattle and horses cannot see red light, so dimming to a red spectrum at night enables workers to service the barn without disturbing the animals.

What source of lighting now solves all the concerns expressed above? The same one you should be putting into your favorite light fixture at home! LEDs are the most efficient and environmentally friendly of the agricultural lighting options, producing white light by combining a blue LED with red and green phosphors. While not exactly daylight, the LED spectrum provides a close approximation of daylight from a human’s point of view, without the spectral gaps of other technologies that domestic animals require.

LEDs also have the longest lifetime (up to 10 years with 24/7 operation), are highly rugged, are not susceptible to shock or vibration, and allow for color shifting and color control. LEDs often have higher upfront costs, but these costs are quickly recouped through energy savings and better production levels, resulting in the lowest total cost of ownership for agricultural lighting options.

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CITY COUNCIL MEETINGS

October 6th
October 20th

REMINDER TO PET OWNERS:

Remember to pick up your dog’s waste — don’t leave it in parks where kids play or other private and public areas!!



Department News ~

Free Payment Option Available Online ~



We hear it in social media, on the phones and in email: You don't want to pay a fee to pay your bill. We want to make sure your customer experience

is top notch, so we are now offering online payments with no fee. Just log on to the City of Wayne website and go to the "Online Bill Pay" option located

on the left hand side of the screen.



WISE WORDS

"Almost every successful person begins with two beliefs: the future can be better than the present, and I have the power to make it so."

~Anonymous

Library News ~

Food for Fines at Wayne Public Library was a great success, with over 200 items going to the Wayne Food Bank. Thank you to everyone who participated!!



A fun way to celebrate the fall season is to decorate a pumpkin. The library staff invites individuals, church, civic, and youth groups, businesses, college students, school students, preschools and city and rural folks to decorate a pumpkin or squash for display at the library during the month of October. October 31st, Halloween Day, be sure to "Trick or Treat" at the library from 10 am to 4 pm. Check to see the prizes awarded for the pumpkins. Use your imagination and create a silly, scary, artsy, colorful, strange, eerie, out-of-the-ordinary, glamorous or any kind of pumpkin you would like. We do ask that you not carve the pumpkin, but just decorate the outside. Pumpkins not picked up by 8 pm on Monday, November 2nd, will be discarded.

The library will close at 4 pm on Friday, October 23rd, for the fall staff in-service.

Wayne Public Library is teaming with Northeast Community College to provide meeting space for two classes on Quickbooks. These non-credit workshops will be held Mondays, October 19th and 26th from 9 am – 4 pm. Cost is \$60 per class. Contact NECC at 402-372-2269 for registration information. Additional classes currently scheduled are:

- ◆ Tuesday, October 20th from 6-9 pm iPhones -- Cost \$30
- ◆ Monday, October 26th from 6-9 pm iPad Basics -- Cost \$30
- ◆ Tuesday, October 27th from 6-9 pm Smartphones (Droids) -- Cost \$30
- ◆ Saturday, November 14th from 9 am 12 pm - Applications -- Cost \$30

The library is also collaborating with Wayne State College in a new service-learning project: Poetry Workshop for Youth. Kelly Weber and members of the Poetry Workshop are offering a three session program geared for junior/senior high school students. Participants will learn about poetry and poetry writing techniques, have the opportunity to perform their work at a slam, and will have one poem published in a booklet of junior/senior high school and college poems

that will be distributed at the final session. Registration is free, and snacks will be provided at each session for all students involved. Sessions run from 3:45-5 pm on October 8th, October 22nd, and December 3rd. Contact the library for more information and pick up a permission form.

The Wayne Public Library Book Club will meet Tuesday, October 27th, 6:00 pm. We will be reading *The Giver* by Lois Lowry. This is a "book to movie" selection, so we will watch the movie and compare the novel and movie version.

The final "Junk in the Trunk" will be in the library parking lot from 9-12 on Saturday, October 3rd. Stop by and browse for a new treasure to call your own.

The library is located at 410 N. Pearl Street and open hours are 10-8 p.m. Monday-Thursday, 10-6 p.m. Friday, and 10-4 p.m. Saturday. Sunday hours of 2-5 p.m. resumed on September 13th. If you would like additional information about any of the library programs and services, please stop by or contact us at 402-375-3135.

Did you know:

- ◆ Your bones are composed of 31% water.
- ◆ About one in nine people lack access to an improved water source.
- ◆ Cold water is heavier than hot water.
- ◆ 90% of the world's fresh water is in Antarctica.



Green Notes ~ October 2015—Electronics Event a Success



We had a great turnout at our annual recycling event last month, collecting 22,885 pounds of electronics. That's over 10 tons of electronics that were diverted from our landfill, nearly a 50% increase from last year's collection! Way to go Wayne for doing the right thing and making sure these hazardous items

do not end up in our landfill, but get properly recycled. Our vendor, Nebraska Recycles, took all the items back to Lincoln for dismantling, sorting and recycling.

We thank our volunteers from the WSC Men's Basketball team who helped throughout the event, along with our Green Team members. If you missed

our event, hang onto your electronics for next year. You can also take certain electronics to Best Buy for recycling (call ahead to confirm if your items are accepted).

For more tips on the Green Path to the Good Life, like the Wayne Green Team on Facebook or visit www.cityofwayne.org/greenteam.

HOURS AT CAC

(September 1st—May 31st)

- Mon-Thu—5:30 am—10 pm
- Fri—5:30 am—9 pm
- Sat—8 am—8 pm
- Sun—1 pm - 8 pm

