

Project Scope:

- 4 prime objectives -

1. Revalidate our proven high value science in an operational retail grocery environment. Our science is Vitabeam™ VQe™, our safe healthy radiant energy technology delivered through a variety of VQe devices.
2. Ratify through mutually agreed detailed protocol, a real-time testing in a respected, quality grocery store that VQe™ does significantly reduce shrinkage of produce (vegetables and fruits) by:
 - (a) demonstrating our dual action science as it extends the product life of fresh produce by naturally destroying bacteria, molds, fungi and other negative microorganisms that feed off and harm these products and
 - (b) promoting natural processes within the produce, keeping their natural nutritional elements active for a longer period of time.
3. Reconfirm that VQe™ rapidly destroys bacteria in seafood cases. To demonstrate that with the elimination of seafood specific bacteria, the root causes of “fishy odors” and clean ice discoloration (“green or yellow ice”) are generally removed as well.
4. Investigate and verify that VQe™ enables red meat cuts (beef, pork and lamb) to stay fresher and last longer in the fresh meat case.

What is VQe™ ?

VQe™ is our safe and natural Healthy Radiant Energy light. Vitabeam™ has designed and engineered, utilizing customized formulas, to solve a wide range of specific health or food safety problems that are caused by toxic and degenerative pathogens. These patent pending formulas combine unique wavelengths of light, designed to achieve specific device outcomes.

Vitabeam™ is a Science and Technology Company

Our science and its formulas provide positive outcomes and solutions, which help our clients to:

- protect their brands and investments
- continuously help destroy pathogens
- better safeguard their customer’s health
- improve the safety of their products
- supply a healthier, fresher and safer product to their customer
- provide a healthier, safer environment for their customers to shop in and their employees to work in
- deliver something definitive (Food Safety and Health Security) that their customer will notice and value

Today Vitabeam is building devices with this specific proprietary LED lighting technology as our delivery vehicle.

“Vitabeam, enhancing sunlight’s power to make life safer!”

Introduction:

The purpose of this shrink test on produce, was to revalidate the positive effect Vitabeam™ VQe™ Extended Product Life (“EPL”) lighting system had on refrigerated fresh produce.

The VQe™ Healthy Radiant Energy devices were installed in (1) the fresh produce sidewall cases and (2) in a free standing refrigerated “strawberry” case in the mutually agreed “test” store in Eastern Central Michigan.

Because the refrigerated sidewall cases in both the “test and control” stores used fluorescent lighting that produces greater heat when operational, which promotes bacteria growth, the Vitabeam™ VQe™ Light Tube was selected. This science based product combines 3500K LED white light and specific spectrum formulas of VQe™ light to destroy bacteria detrimental to produce while simultaneously promoting natural processes like photosynthesis to extend the useful life of the products. With the strawberry case already equipped with LED lighting, only a single Vitabeam™ VQe™ EPL Strip was installed to destroy bacteria while simultaneously promoting these natural processes.

The purpose of the installation of the VQe™ EPL Strips in the Seafood cases was to reconfirm that VQe™ devices rapidly destroys bacteria in sea-food cases. With the installation complete, Vitabeam demonstrated that with the elimination of seafood specific bacteria, this is in fact the root causes of unpleasant “fishy odors” and clean ice discoloration (“yellow or green ice”) are generally removed.

The purpose of the installation of the VQe™ EPL Strips into the Red Meat cases was to investigate and verify that VQe™ enables red meat cuts (beef, pork and lamb) to stay fresher and last longer in the fresh meat case.

Establishing an accurate comparison:

The grocery chain “control” store in central eastern Michigan was chosen because it was judged to have about the same retail produce dollar volume and customer demographics as the grocery chain “test” store. The produce came from the same sources for both stores. Each department determined and tabulated their retail shrink dollars on the same 79 vegetable items in their sidewall refrigerated cases. The shrink was assessed at both stores for the same eight week period.



Control Store: Eastern Central Michigan

The only change in the two stores was the installation of the VQe™ lighting in the test store. The difference in shrink would be attributed to the Vitabeam™ VQe lighting system. The only parameter that could not be controlled was customer shopping habits which could produce a limit of error from 0 – 4% (estimated).



Test Store: Eastern Central Michigan

The test period was agreed to be a full continuous eight weeks by the retailer to best assure that the shrinkage results were both balanced and attained over a reasonable period of time. Product loss prior to reaching retail display must not be counted. All fresh non-dated like items under test lights must be compared with control store. Any operational or equipment issues that could deteriorate product must be noted.

The dollar analysis methodology used to determine the Return on Investment for capital spent on the Vitabeam™ VQe™ or Healthy Radiant Energy Food Safety System installed in the sidewall refrigerated display cases is primarily based on the documented savings generated from produce shrink reduction during the eight week test period agreed to by the two companies. This real savings was augmented by energy savings from LED versus fluorescent lighting and other intrinsic savings detailed in the Test Report and mentioned again in this analysis.

Analysis:

Cost of VQe™ bulbs	12@\$500.00	=	\$6,000.00
Installation Cost Total	12hrs. @\$79.60/hr.	=	\$955.20 (Estimated by Laibe)
Operating Electricity Cost	21 hrs. /day @\$.12 kWh	=	\$264.94
Cost		=	\$7,220.10

Savings (annualized)

Shrink Savings from test		=	\$10,310.17
Shrink Processing Savings	(61 hrs. X \$8.25/hr.)	=	\$503.25
Energy Savings		=	\$52.97

Total Savings = \$10,876.49

PAYBACK TIME: $\$7,220.10 / \$10,876.49 = .663826 \times 364 \text{ days} = 242 \text{ days for exact payback/ } 7.97 \text{ months}$

NET RETURN: Annualized Savings \$10,876.49 – Cost \$7,220.10 = \$3,656.39 Net Return in 1st Year and \$10,876.49 each year thereafter

MONETARY GAIN: 753% ROI benefit over 5 years of installation.

Important Notes:

- There are other savings and benefits that were not easily quantifiable so they were excluded.
- The refrigerated cases could be set 5 degrees warmer and still protect the product.
- This is up to the discretion of the retailer and was not done during the test.
- This would add to energy savings and case life.
- Since the cases themselves have less bacteria they may need to be cleaned less often. Again, this is up to the discretion of the retailer.
- This could easily save 50 man hours.
- Misting can also be lessened and have the same effect.
This can save water and frequency of cleaning and add to the overall life of the refrigerate case.
- These are all real dollar savings opportunities.

Other intrinsic benefits include:

- extra days of freshness for the customer
- increased eye appeal
- improved freshness, image and presentation
- the product for sale is safer for human consumption

The Real Savings:

The real dollar savings obtained by reduced produce shrinkage are not the only benefits of the VQe™ lighting system. Other quantifiable dollar savings include:

1. Electrical energy savings using LED's versus fluorescent lighting
2. Visually brighter and attractive produce sections because of the higher lumens from the Vitabeam™ LED lighting.
3. The bacteria reduction achieved NOW allows for a 5 degree increase in refrigeration temperature.
4. The bacteria reduction achieved NOW requires less misting = saving water and increasing case life.
5. Labor hours to clean the cases are reduced by approximately 50 hours per year.
6. Labor hours to handle and process shrink are also reduced by approximately 50 hours per year.

Unquantifiable benefits produced by the Vitabeam™ lighting system may be even more valuable:

1. The Vitabeam™ technology destroys bacteria = less bacteria in the selling fixtures.
2. Extra freshness and product life for the customer who buys and takes home the produce.
3. Increased eye appeal because product is fresher longer and the lights are more sparkling.
4. The Vitabeam™ experience delivers a BETTER FRESHNESS IMAGE AND PRESENTATION.
5. And above all -- SAFER produce for the customer.

ROI Conclusions:

A 2 tube/bulb sidewall case installation for the Vitabeam™ Extended Product Life system has an ROI of 289 days or 9.6 months.

ROI Calculations:

1. The real shrink dollars from the eight week test were used as the dollar savings.
2. .08 cents per KWH was used as the rate of savings on electricity.
3. The man hours saved processing shrink and cleaning cases and the electricity saved by raising temperatures 5 degrees F was estimated at \$1,000.00 per year in total.
4. The cost of bulb replacement frequency was estimated at \$100.00 per year.
5. The estimate for installation was provided by Laibe Electric.
6. The number of days is the exact time when the savings equal the total installation cost.

"The yellowish discolorization in our seafood displays is gone and has never come back..."

-Staff member seafood department -

"The lights make the produce section "pop" and it makes the produce look fresher..."

-Manager-

"The meat department has a full day more of shelf life on our fresh cut meats..."

-Meat Department Manager-

"I'm thrilled that the fish smell is gone and when I get home I no longer smell fishy..."

-Seafood Department Manager-

Other Observations:

At the request of store management, VQe™ EPL Strips were installed in red meat and seafood cases with positive results:

Commentary per store managers and personnel included:

- Red Meat has seen an increase in their shelf life using a combination of fogging and the bacteria destroying lights.
- Seafood results were amazing.
 - o The yellow ice caused by bacteria is gone within the first day of operations
 - o The seafood odor is also gone in a matter of a couple of days!
 - o The bacteria causing these issues are also gone.
- Now that I understand that these results are accomplished by promoting photosynthesis and destroying bacteria at the same time, it is easy to see that the VQe™ lights make my product live longer by keeping fresher longer.

General Conclusion and Benefit If Produce Is Sold At Higher Temperatures:

The highest dollar shrink items were peppers (especially red and yellow), eggplant and summer squashes. The Mexican origin and high retail prices contributed to this observation that all of these items do not respond well to the cold ambient temperatures of a refrigerated produce case (36-40F). They respond better to temperatures above 45F or 50F. Raising the temperature in cases by 5 degrees F, as recommended when bacteria are controlled, will also add life to these high shrink items. Fresh produce items can grow at 55F or higher. The five degree increase allows the products to continue respiration and grow, because the defense mechanisms are still intact to fight microbes and photosynthesis receptors are still stimulated. All of these parameters promote freshness, sales appeal and product life.

Assumptions:

1. The Produce Department test store or site model:
 - a. Has 48 feet of refrigerated sidewall produce displays and several free standing refrigerated center of room cases.
 - b. Generates the produce sales volume equal to the "control store" during the test
 - c. Has the VQe™ system installed, which is the new Healthy Radiant Energy bulb with 2 bulbs per four feet or 24 bulbs for the 12 - four foot sections.
 - d. The summer sales and shrink may be greater, we will annualize the real sales during the test in a linear fashion.
2. The lights are on 19 hours per day for 363 days
3. The data generated for shrink processing shall be assumed as constant throughout the year, but this is conservative at the least
4. The labor rate per hour is estimated at \$8.25 so projections are not skewed
5. The electricity rate is \$.08 kw/hr. and will remain constant.

Executive Summary:

The final results for the Retail Produce Test showed that in the eight week period the "test" store had 29.15% less retail produce dollar shrink.

At the halfway point in the test period, it was decided to compare shrink in the free standing strawberry cases located in mid floor in produce. The strawberry data for four weeks generated a substantial 50.85% less shrink or discarded strawberries.

The other major positive results came from the retailer suggested testing in their Red Meat and Seafood cases. Here the retailer acknowledged that more retail dollars were generated because of longer sell times in the cases.