

RID-X®

TRUTH or CONSEQUENCES?

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The level of energy that some people have over this question rivals the passion displayed over the divisive questions facing our democracy. It's not clear though whether the pro vs. con camps align in anyway with Republican vs. Democratic parties. At issue: the efficacy of septic tank additives such as RID-X®, or any other brand of household wastewater treatments that are flushed down toilets on a monthly or weekly basis, and the belief that they'll help ensure "healthy" operation of their septic system.

According to the Maryland Department of the Environment, there are approximately 420,000 septic systems treating toilet waste in the state of Maryland. As of late 2015, about 21 million households in the United States – that's about one fifth of all households, are served by some form of septic system as opposed to public sewer.

Septic tanks can range in size from about 500 gallons to 2,500 gallons or so. Service companies that pump out, inspect, and maintain these systems charge anywhere from \$100 to \$1,000 depending on size and many other factors. Many of the companies that provide septic tank pumping services recommend that tanks be pumped and inspected every two to five years – depending on size, design, use, and the number of people it serves.

Some folks say that if your septic system is properly sized and used properly, you should never have to pump it out. Especially so, they argue, if you use one of the "stimulator" products regularly as directed.

Other folks say that you should have your septic system pumped out and inspected on a regular schedule based on your circumstances.

So, who is right? Who is to be believed? Why is there such a polarity of opinion on this issue? As with many other controversial matters or pro and con debates, it is often a matter of who has the most convincing argument. And, as with almost everything in this world, money is certainly playing a role in this debate. Some believe that you might just as well shred dollar bills and flush them down the toilet and you'll have the same result – a complete waste of money. Other people swear by these miracle enzymes.

Obviously, the people who make money by pumping, maintaining and replacing septic systems would like you to spend money doing those things. So, are they likely to recommend a product that reduces or eliminates the need for their services? Just as obvious, the people who make money by manufacturing and selling the products they claim will keep your septic system chugging along with minimal or no need for service will tell you it works great. Can they both be right? Where can the truth be found? Are there unbiased companies or organizations that have the answer?

The Carroll County Health Department has this to say in their *Environmental Health Septic System Manual* published at:

<http://cchd.maryland.gov/environmental-health-septic-system-manual/>

FOR BEST SERVICE THESE PRECAUTIONS ARE SUGGESTED:

Become familiar with the location of the components of your septic system. Check your diagram.

Do not allow motor vehicles to drive over any part of your underground system. The underground pipes could be crushed or broken, which could stop the operation of the system.

Do not plant trees or shrubs on or near the system. Their roots may enter the fields and clog them.

Do not overload your septic system. The septic tank should receive all wastewater from your house, including that from dishwashers, washing machines, and garbage grinders.

Rainwater from downspouts, sump pumps, water from foundation drains or other relatively clean water should not be piped into your septic tank or disposal field. To do so could flood the tank, stir up the contents, and carry some of the solids or grease to the disposal fields, sand mound or seepage pit.

For best service, cooking greases and fats should be poured into an expendable container that can be disposed of with the trash or garbage. If these substances are poured into a kitchen sink, they tend to cause trouble, since they harden in the sewer pipes and increase the scum layer in the septic tank.

Check the level of solids in your tank once a year to determine if it needs cleaning. You can do this by following the steps in the back of this booklet in the section – “Checking Your Septic Tank.”

Ask your Health Department about a list of licensed septage haulers, listed in the yellow pages of your telephone book under “Septic Tanks and Systems.” They are equipped to clean the solids and scum out of your septic tank. Failure to clean the septic tank when needed allows solids and scum to pass into the disposal field or seepage pit. The seepage area can then become clogged and force sewage to the surface of the ground or back into the house. This creates a hazard to the health of your family and neighbors. Also, when your septic system fails, sinks and toilets will not drain. Correction may be expensive. Some corrections require continuing expenditures of money.

Flushing yeast or chemicals into the system will not reduce the solids in the tank; this is not a substitute for cleaning. If such products had value, the Health Department would be the first to suggest their use. The natural bacteria in the tank provide the most efficient cleaning method. *On the other hand, the amounts of bleaches, cleaners, and drain cleaning chemical generally used are so small in relation to the septic tank capacity that they do not interfere with the operation of the system.*

When the tank is cleaned, a small amount of sludge should be left in it. This provides bacteria for the decomposition process.

If you have any questions or problems, CALL YOUR LOCAL HEALTH DEPARTMENT. Their personnel will advise and help you in any way they can.

*PLEASE REMEMBER TWO IMPORTANT THINGS: The care and maintenance of your private sewage disposal system is your responsibility. Septic system overflow is human waste, which can carry disease, cause offensive odors, and attract flies. You need to prevent or correct breakdowns to protect your family and neighbors. When an overflowing private sewage disposal system creates a hazard to the community's health, the Health Department must take action – often action against you. Second, remember that neglected systems can be very expensive to repair. The money saved by lack of maintenance is lost very quickly when replacing a failed system. If your system has not been checked within the past two years, it would be wise to do so.9. Flushing yeast or chemicals into the system will not reduce the solids in the tank; this is not a substitute for cleaning. If such products had value, the Health Department would be the first to suggest their use. The natural bacteria in the tank provide the most efficient cleaning **method**.*

The following link will take you to a site packed full of information about septic systems that does not seem to have any hidden agendas. See what you think: <http://www.septicsystem.com/>

Hopefully, unbiased scientific study will be a good resource. Here is link to the peer-reviewed article, "Septic Tank Additive Impacts on Microbial Populations", as published in the Journal of Environmental Health in January/February 2008:

https://www.aero-stream.com/wp-content/uploads/Additives-Dont-Work_Journal-of-Environmental-Health.pdf

This article is also reprinted here:

Septic Tank Additive Impacts on Microbial Populations

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 M. Gumpertz, Ph.D.
 A.G. Wollum, Ph.D.
 C. Cobb, M.S.
 J. Strock, Ph.D.

Abstract

Environmental health specialists, other onsite wastewater professionals, scientists, and homeowners have questioned the effectiveness of septic tank additives. This paper describes an independent, third-party, field scale, research study of the effects of three liquid bacterial septic tank additives and a control (no additive) on septic tank microbial populations. Microbial populations were measured quarterly in a field study for 12 months in 48 full-size, functioning septic tanks. Bacterial populations in the 48 septic tanks were statistically analyzed with a mixed linear model. Additive effects were assessed for three septic tank maintenance levels (low, intermediate, and high). Dunnett's t-test for tank bacteria ($\alpha = .05$) indicated that none of the treatments were significantly different, overall, from the control at the statistical level tested. In addition, the additives had no significant effects on septic tank bacterial populations at any of the septic tank maintenance levels. Additional controlled, field-based research is warranted, however, to address additional additives and experimental conditions.

Introduction

In the United States, 25 percent of the total housing units and 33 percent of all new development rely on onsite wastewater treatment systems (septic systems) for their household wastewater treatment (U.S. Environmental Protection Agency [U.S. EPA], 2005). Some states, such as North Carolina, where 50 percent of the population depends on onsite systems, utilize these technologies even more extensively. The number of onsite wastewater treatment system users increases every year as a result of continuous urban and suburban sprawl and the high cost of central sewer systems. Hence, the cumulative number of homes served by onsite wastewater

systems is substantial and growing. The increasing popularity of onsite wastewater treatment systems has led to widespread production and use of septic system additives. Over 1,200 additives are currently available on the market (National Small Flows Clearinghouse, 2002). Many additive manufacturers and distributors claim additives enhance bacterial populations and eliminate or reduce septic tank pumping frequencies needed to remove solids accumulated in septic tanks (Scow, 1994).

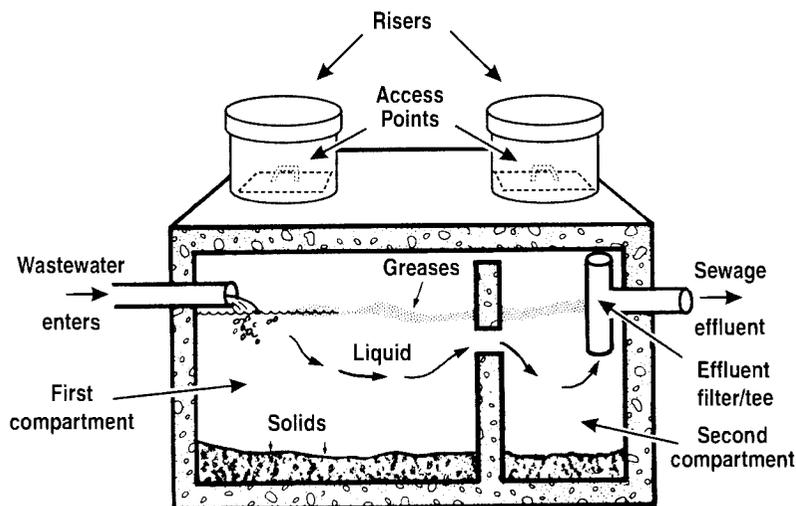
There are three basic categories of septic tank additives: chemical, physical, and biological. Chemical additives usually are either strong oxidizing agents or organic chemicals,

but this category can also include inorganic chemical compounds. Strong oxidants and organic chemicals may be detrimental to septic systems and the environment; hence, they have limited use today (Dow & Loomis, 2005; Friedman, 1996; Kaplan, 1983). Physical additives consisting of mineral microparticles have been used in Europe (Maunoir, Sabil, Rambaud, Philip, & Coletti-Previero, 1991; Philip, Maunoir, Rambaud, & Philippi, 1993). Most biological additives are designed to enhance the biological activity in the septic tank through the addition of organisms such as bacteria, enzymes, or both. Most wastewater experts are not concerned about environmental damage from biological additives (Dow & Loomis, 2005; Kaplan, 1983; Lee, Jones, & Turco, 2005).

On the basis of manufacturer lab and bench-scale tests, additive formulations are selected to have high levels of enzyme production, rapid bacterial organism growth rates, the ability to survive environmental conditions in waste systems, and the ability to withstand a large range of pH and temperature conditions as well as detergents and household chemicals (Scow, 1994). The primary bacteria in additives include a variety of aerobes and facultative anaerobes such as members of the genera *Bacillus*, *Pseudomonas*, *Ruminococcus*, *Bacteroides*, *Lactobacillus*, and others (Scow). Many of these organisms can promote hydrolysis via liquefaction, conversion of more complex molecules to fatty acids via acid fermentation, and conversion to gases via methanogenesis and other reac-

FIGURE 1

Cross-Sectional View of Two Compartment Septic Tanks Used in the Study



Used with permission from Hoover and Konsler (2004).

tions. Additives also often include added enzymes such as proteases, amylases, lipases, and cellulase (Scow).

Septic tank additives are promoted extensively across the United States, and many homeowners desire information about their effectiveness. The advertisement of additives in local magazines, national publications, phone solicitations, Internet ads, and TV ads, as well as their easy availability in hardware stores, building supply stores, and supermarkets, is raising questions among homeowners. The question that homeowners and many onsite professionals, such as environmental health specialists, installers, and service providers, ask most frequently about maintenance of onsite wastewater treatment systems is whether additives have any benefit. Unfortunately, very little peer-reviewed and published research exists about the microbial effectiveness of bacterial septic tank additives (Scow, 1994). Currently, verification of the effectiveness of additives relies primarily on laboratory or benchtop studies (Jantrania, Sack, & Earp, 1994), often conducted by product manufacturers, or on more theoretical literature review assessments that have not been substantiated in the field with controlled, third-party, replicated experiments (Scow).

The objective of this article is to report on a replicated and controlled field scale experi-

ment designed to measure the impacts of selected bacterial additives on total microbial populations in septic tanks. Additive manufacturers keep bacteria and enzyme formulations confidential. Hence, neither enzyme levels nor specific genera of organisms were assessed in our study. Rather, we used the total bacterial-microbe content in septic tanks as a performance benchmark, or proxy, for assessment of efficacy.

Methods and Materials

The impacts of three septic tank additives and a control were assessed for a 12-month period in 48 full-scale functioning septic tanks at existing home sites (Clark, 1999). Levels of septic system sludge, scum, five-day biochemical oxygen demand (BOD_5), and total suspended solids (TSS) usually vary substantially from home to home because of variation in homeowner water use, chemical-cleaning-compound use, solids disposal habits, family size, and family work situation. To estimate the replication needed for this experiment, we made an informal assessment of inherent variability and variance from prior septic tank data sets. It was determined that 12 replicates were necessary for each treatment.

Additive product manufacturers were not involved in the study, nor in its funding. Liquid bacterial additives were purchased in

bulk at local commercial retail stores for the study. They were stored in a locked closet at room temperature in the manufacturer's containers until they were added to the septic tanks. No expiration dates were observed on the packaging for these additives.

Research Sites

The study sites were located in Chatham and Orange Counties, North Carolina. These locations included septic systems serving residences at mobile home parks. Over 80 two-compartment septic tanks (Figure 1) were initially screened at the sites before the 48 experimental units were selected (Clark, 1999). In addition, we used a homeowner survey to exclude any systems that had been utilizing septic tank additives before the study was initiated. Forty-eight septic tanks were selected for the study sample, primarily on the basis of inspection of the initial sludge depth and scum thickness. An access riser was added from the tank inlet up to the ground surface for any system that did not already have a riser.

Experiment Design

A randomized complete block design was utilized for this study. The 48 septic tanks (experimental units) were stratified into 12 blocks. Each block consisted of four experimental units that contained similar initial solids contents (sludge depth and scum thickness). The initial solids contents represented one of three maintenance levels (low, intermediate, or high prior maintenance). Maintenance level was defined as the site parameter in the statistical model, since the maintenance level was consistent within each of the three sites: All low-maintenance tanks were located at one of the three sites, and so forth. Three blocks consisting of 12 experimental units at the Chatham County location had the lowest level of maintenance (greatest initial sludge depth and scum thickness). These tanks had not been pumped during the prior 15 to 20 years. Hence the initial existing sludge and scum levels were greater here than at the other two maintenance levels. The Orange County location included two sites: an old section of a mobile home park and a new section of the same mobile home park. Five blocks consisting of 20 experimental units in the new mobile home park at the Orange County location were, at the start of the experiment, at a high level of maintenance—all had been pumped two to three years before initiation of the study. Four blocks consisting of 16 experimental units in the old sec-

tion of the mobile home park at the Orange County location had an intermediate initial maintenance level. As a result, there were 12 replicates of each treatment: three blocks at the low maintenance level, four at the intermediate maintenance level, and five at the high maintenance level.

Distribution, Sampling, and Analysis of Additives

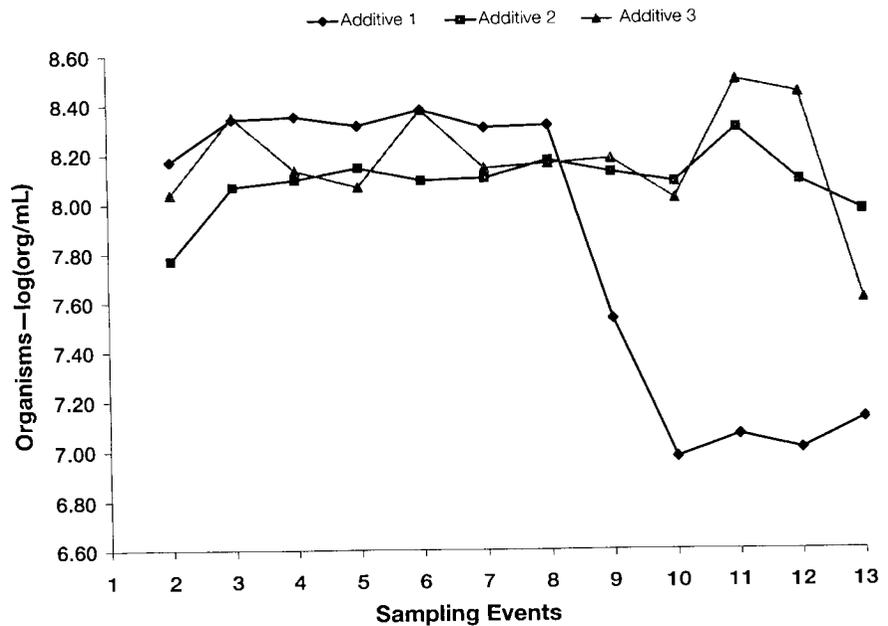
Distribution of the additive application treatments followed the double-blind approach commonly used in the medical community. Secondary researchers randomly assigned the three additives and the control to the four experimental units within each block. These secondary researchers then applied the additives each month following collection of the experimental data by the primary researchers. The primary researchers made field measurements, collected samples, and analyzed the data, but had no information about which treatments (or control) were assigned to the experimental units. The liquid bacterial septic tank additives selected for the study were added approximately once a month (every four weeks) to the septic tanks. Three treatments were evaluated: a Drano septic tank additive (Additive 1), a Liquid-Plumr septic tank additive (Additive 2), and a Rid-X septic tank additive (Additive 3). The volumes added monthly were 591.5 mL (20 oz) of Additive 1 and Additive 2, and 310.5 mL (10.5 oz) of Additive 3.

The viability of biological organisms in the additive containers was evaluated monthly with a small sub-sample collected before their application. A 5-mL sample collected from each additive container was diluted and plated onto tryptic soy agar with a spiral plater (Wollum, 1982). The plates were checked daily, and colony forming units (CFUs) were counted as growth appeared (Clark, 1999).

Additives were added directly to the inlet of all septic tanks except the 12 control septic tanks. Total organism counts (Wollum, 1982) in the septic tanks were measured at approximately 12-week intervals (quarterly) for all 48 experimental units. The first count was not taken until the 12th week of the study. A cross-sectional sample was collected from near the inlet of the septic tank with a Pinpointer™ sampler for each experimental unit (Clark, 1999). Wastewater collected in the Pinpointer™ sampler was poured into a bottle, held in a cooler, and transported to the lab. The sample was allowed to settle, a supernatant sub-sample was diluted, and ali-

FIGURE 2

Mean Number of Bacterial Colony-Forming Units Present in Bacterial Additives



quots were plated onto tryptic soy agar with a spiral plater (Wollum, 1982).

The total countable bacterial population in the septic tanks was used as a biological benchmark for assessment of the bacterial efficacy of the additives. This method was used because additive formulations (number and types of organisms, enzymes, and so forth) are company trade secrets and not readily available.

Statistical Assessment

The total-bacterial-count repeated-measures data from the experimental units were log-transformed because of the high variability of the data and then were statistically analyzed according to a mixed linear model, with repeated measures implemented according to the MIXED procedure (Little, Henry, & Ammerman, 1998) in the SAS System (SAS, 2003). The model used for this study was as follows:

$$Y = \text{Site} + \text{Block (Site)} + \text{Treatment} + \text{Treatment*Site} + \text{Time} + \text{Time*Site} + \text{Time*Treatment} + \text{Time*Treatment*Site} + \text{within-tank error}$$

Block (site) and within-tank error are random, and all other terms are fixed effects. Observations are assumed to be correlated

over time within a tank. Dunnett's *t*-test at an $\alpha = .05$ level according to the Hsu correction was used to compare the effectiveness of treatments to the control and to test for significant differences.

Results and Discussion

Additive Viability in Containers

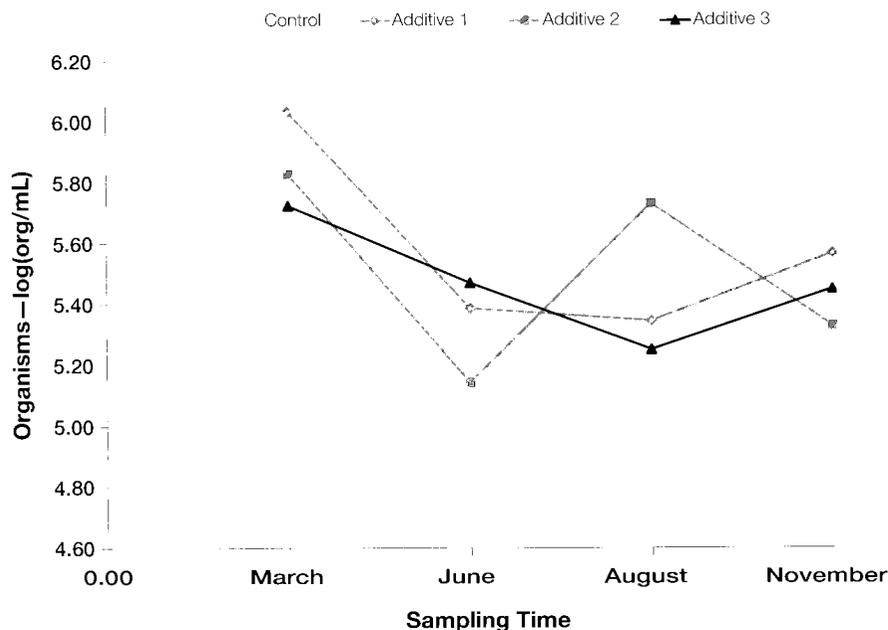
Monthly analysis of the products revealed that all additive containers had substantial numbers of viable microbes at the time of enumeration (Figure 2). The geometric mean CFU concentrations in Additive 1, Additive 2, and Additive 3 were $0.66 \times 10^8/\text{mL}$, $1.21 \times 10^8/\text{mL}$, and $1.46 \times 10^8/\text{mL}$, respectively. For comparison, these bacterial populations were similar to another bacterial additive called Super Shock, which claims to have $1.00 \times 10^8/\text{mL}$ bacteria according to the manufacturer's literature (Septic-1™, 2005).

Septic Tank Bacterial Populations

The septic tank log average bacterial populations were 5.98/mL, 5.94/mL, 5.83/mL and 5.98/mL, for experimental units receiving Additive 1, Additive 2, and Additive 3, and for the control, respectively. These concentrations correspond to geometric mean bac-

FIGURE 3

Least-Square Means for Treatments at Each Sampling Time



Expressed as log₁₀ (concentration) of organisms per mL of septic tank liquid. Standard errors for a single treatment at a single sampling period ranged from 0.12 to 0.32.

three additives did not indicate a pattern of any one additive having a greater effect than the others on the total numbers of bacteria in the septic tank (Figure 3).

Additive Effects and Interactions

No significant effect on septic tank bacterial population was found (i.e., total bacteria concentrations in CFUs/mL) over the period of study (Table 1). On the other hand, both the treatment*time interaction and site*treatment interaction effect on bacterial concentrations in septic tanks were nearly significant at the $\alpha = .05$ level.

Estimated-least-square means plots for treatment effects at different times (Figure 3) and for different sites (maintenance levels) indicated that the means for the controls were not consistently less than the means for the additives (Figure 4). This result demonstrated that the additives were not having the desired biological effect, at least with respect to total bacteria concentrations in the septic tanks. It is of interest that at the low-maintenance site (i.e., the septic tanks that had not been pumped during 15 to 20 years of operation), the bacterial populations in additive-treated septic tanks were numerically greater than those in the control tanks (Figure 4). On the other hand, Dunnett's *t*-test for septic tank bacterial populations for Site 1 (low maintenance level) indicated that none of the treatments gave results significantly different than the control ($\alpha = .05$ level). While our study did not show any significant interaction effects, additional assessments of potential interactions between additives and prior maintenance levels in septic tanks should be studied since some interactions were almost significant at the $\alpha = .05$ level. Also, we recommend that controlled, full-scale field studies be conducted for assessment of any potential additive effects on specific aerobic and facultative anaerobic genera and species important to hydrolysis, fermentation, anaerobic oxidation, sulfate reduction, or methanogenesis processes within poorly maintained septic tanks.

Time Effects

The time effect was significant at the $\alpha = .05$ level (Table 1). The reason for a time effect over the entire study period is unknown. It is important to note, however, that despite the relative downturn in bacterial concentrations in the June sampling period (Figure 3), all 48 experimental units still maintained very high numbers of organisms throughout the entire study. Bacterial populations had ranges of

TABLE 1

Type 3 Effects for Fixed Effects on Bacterial Population

Effect	F value	Pr > F
Site (maintenance level)	1.32	0.3145
Treatment	0.17	0.9194
Site*Treatment	2.10	0.0581
Time	3.67	0.0142
Site*Time	0.67	0.6772
Treatment*Time	1.92	0.0552
Site*Treatment*Time	0.62	0.8800

terial populations in the septic tanks of 9.50×10^5 /mL, 8.63×10^5 /mL, 6.81×10^5 /mL, and 9.60×10^5 /mL of septic tank liquid for Additive 1, Additive 2, Additive 3, and the control, respectively. The mass number of organisms added to the septic tanks per month via the additives were typically less than the cumulative mass number of organisms already present in the control septic tanks. For instance, Additive 2 added 1.21×10^8 CFUs/mL, which is equivalent to a mass of 7.15×10^{10} organisms added from one container of Additive 2

to a septic tank. The control tanks, however, already contained a geometric mean of 9.60×10^5 CFUs/mL, which is equivalent to a total cumulative mass of 3.64×10^{12} organisms in the 3,780-L (1,000-gallon) tanks, without the benefit of any additives. Hence, the mass number of organisms in the non-additive control tanks was between 10-fold and 100-fold greater than the number of organisms added from Additive 2. During the four quarterly sampling events, the average bacterial populations for the control and for the

1.48×10^3 – 1.72×10^7 CFUs/mL, 1.04×10^4 – 7.80×10^6 CFUs/mL, 2.09×10^4 – 6.74×10^6 CFUs/mL, and 4.90×10^1 – 6.13×10^6 CFUs/mL in the tanks receiving Additive 1, Additive 2, and Additive 3, and in the control, respectively. Dunnett's *t*-tests over time showed no significant difference ($\alpha = .05$) in total microbial concentrations between treated and control tanks at any of the individual sampling events, including the June sampling event.

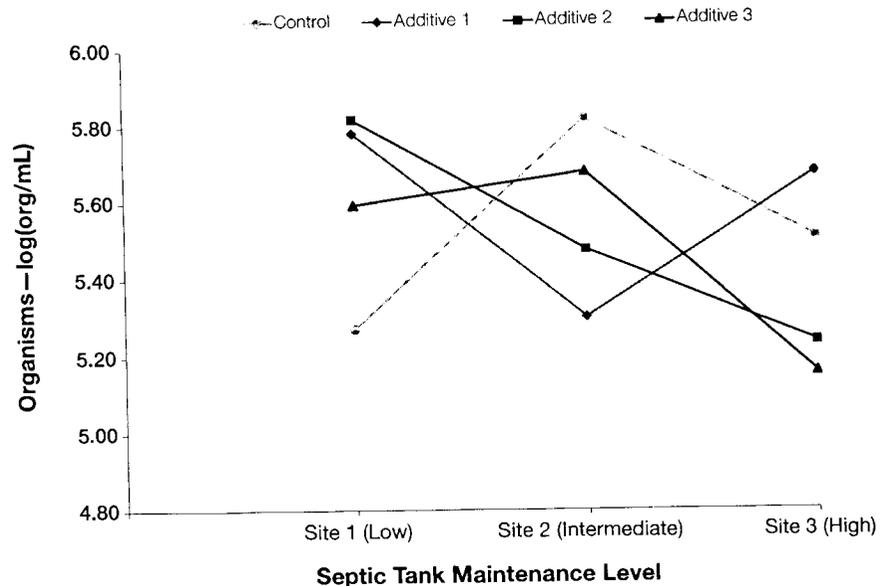
In summary, there were consistently large quantities of microorganisms in the septic tanks assessed in our study, regardless of the significant time effect and the June bacterial population reduction. It is theoretically possible that reductions in bacterial populations in June resulted from ubiquitous spring-cleaning activities during April and May.

Summary and Conclusions

All treatments maintained large total organism populations throughout the study. Across all maintenance levels, the septic tank additives did not significantly increase total bacterial concentrations in the septic tanks compared with concentrations in the control (no additives). Dunnett's *t*-tests, performed to evaluate treatment effects by site at the $\alpha = .05$ level, indicated that the treatments did not give results that were significantly different from those obtained in the control tanks for any given maintenance level (low, intermediate, or high). Therefore, none of the additives significantly increased the number of organisms in the septic tanks. In addition, the total mass load of bacteria in the control septic tanks exceeded the mass of bacteria added via these additives. Note, that while the site*treatment interaction and the treatment*time interaction were not significant, they were almost significant at the $\alpha = .05$ level (Table 1). Hence, *t*-tests made at other α levels could give different results. An $\alpha = .05$ level of significance was selected before the field assessment to minimize any chance that erroneous study results could affect the guidance provided by thousands of scientists,

FIGURE 4

Least-Square Means for Treatments by Site (i.e., Maintenance Level)



Standard errors for treatment means for each site ranged from 0.16 to 0.23.

environmental health specialists, and other onsite wastewater professionals to the millions of homeowners using septic tank systems.

Finally, our experiment did not attempt to measure the effects of biological additives on concentrations of specific bacterial genera or species or related enzymes that could potentially influence hydrolysis, fatty acid dissolution, or methanogenesis. In addition, only three of the 1,200+ septic tank additives on the market were assessed in the study. Therefore, additional replicated, controlled, full-scale field research studies should be designed to determine whether these findings about septic tank additives can be expanded beyond the experimental conditions tested here.

Acknowledgements: Appreciation is extended to the Orange County Health Department (Tom Konsler and Greg Grimes) and the Chatham County Health Department (Jimmy Collins) and to Walter Bright (*in requiem*), Joanna and Anthony Bright, Wayland McFarland, and Lee Lambert for assisting with locating and providing access to the study sites. This study is dedicated to Mr. Walter Bright in memory of his forward-thinking and willing cooperation during many years of collaboration.

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RID-X® is probably the best known brand name of dozens if not hundreds of similar products available. RID-X® is readily available and currently sells on Amazon for about \$7.00 for a 9.8 ounce box of powder (recommended as a single monthly treatment). That's approximately \$11.43 per pound. And, if done monthly, that's \$84.00 per year plus shipping and taxes.

Here is a link to their website: <http://www.rid-x.com/>

And, the following information is copied directly from their main webpage:

HOW DOES RID-X® WORK?

RID-X® septic maintenance solutions help restore the balance in your septic system

RID-X® Septic Tank System Treatment contains billions of 100% natural active septic tank bacteria and enzymes that have been scientifically proven to digest household waste. These bacteria were developed to be more active than the bacteria that naturally occur in your septic tank. By adding RID-X®, you help restore the delicate balance of beneficial septic tank bacteria and enzymes that are needed to help keep your system operating at full efficiency and avoid costly septic maintenance.

Each box of RID-X® contains the following ingredients, scientifically proven to break down household waste:

Cellulase breaks down toilet paper, vegetable matter and some foods

Lipase breaks down fats, oils and grease

Protease breaks down proteins

Amylase breaks down starches

How soon does RID-X® begin to activate and work?

Immediately. The enzymes begin working as soon as they come in contact with water and the waste they break down. The septic tank bacteria take 2-4 hours to germinate, multiplying to the maximum level that the environment will allow in about 2-4 days if the temperature and conditions

are favorable. However, with the constant flow of sewage in, and water out of the tank, it is important to add RID-X® according to label directions in order to keep the RID-X® septic tank bacteria level at its highest. Because septic systems vary so much, we cannot make assertions on how quickly the bacteria and enzymes will break down waste.

WHY IS RID-X® A SMART CHOICE FOR YOUR SEPTIC TANK SYSTEM?

Adding RID-X® to the septic system each month is a simple septic maintenance solution that will help prolong the life of your septic system.

Trusted for more than 50 years. Septic system owners have long relied on RID-X® along with occasional pumping to help keep their septic systems free-flowing.

Breaks down paper. RID-X® contains cellulase enzymes, the only enzyme that can digest paper.

Breaks down grease. RID-X® is designed to attack grease in your septic tank, breaking it down to slow the accumulation of the greasy scum layer, which, if left unchecked, can compromise the function of your septic system.

Inexpensive and easy to use. Just flush it down the toilet. There's no mess, mixing or waiting.

Safe for pipes and plumbing. RID-X® contains 100% natural active bacteria and enzymes. Our septic tank bacteria formula contains no harmful or harsh chemicals and won't harm your pipes or plumbing. Use it with complete confidence.

Three convenient formulas. RID-X® Gelpacs, RID-X® Powder and RID-X® Liquid.

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Additional sources of information about septic systems:

Aero-Stream LLC

<https://www.aero-stream.com/the-absolute-truth-about-septic-tank-additives-they-dont-work/>

Anne Arundel County Department of Health

<https://aahealth.org/programs/env-hlth/well-septic-systems/guidelines-maintaining>

[Carroll County Health Department](#)

<http://cchd.maryland.gov/environmental-health-septic-system-manual/>

How Much Does it Cost to Pump Out a Septic Tank?

<https://www.kompareit.com/homeandgarden/plumbing-compare-septic-tank-cleaning-cost.html>

National Environmental Services Center

http://www.nesc.wvu.edu/pdf/ww/septic/pl_fall04.pdf

Purdue University Home Extension Service

<https://www.extension.purdue.edu/extmedia/henv/henv-13-w.pdf>

Septic Tank Pumping Guide: When NOT to Pump Out A Septic Tank

https://inspectapedia.com/septic/Do_Not_Pump_Septic_Tank.php

Virginia On-Site Wastewater Recycling Association

<http://www.vowra.org/content.asp?contentid=61>

U.S Department of Health and Human Services

<https://hpd.nlm.nih.gov/cgi-bin/household/brands?tbl=brands&id=18001198>

DISCLAIMER

John P. Hale is a licensed real estate agent in Maryland and Pennsylvania. He is affiliated with Coldwell Banker Residential Brokerage in Westminster, Maryland. John has been licensed since 2000 and also practiced in Tucson, Arizona for many years. Mr. Hale holds the following designations and certifications awarded by the National Association of REALTORS® (NAR) and other authorized institutions: ABR-Accredited Buyers Representative, AHWD-At Home With Diversity, CNE-Certified Negotiation Expert, CRMS-Certified Risk Management Specialist, CRS-Certified Residential Specialist, CTA-Certified Tourism Ambassador, e-PRO-Online Real Estate Practice, GRI-Graduate of Realtor Institute, MRE-Master of Real Estate, MREP-Mortgage Real Estate Professional, and MRP-Military Relocation Professional.

Please note that this article was written by John to provide objective information and to also reflect his opinion of good practice at the time of its' writing for the general benefit of those considering sale or purchase of real estate. It is not intended as definitive legal advice and you should not act upon it as such without seeking independent legal and financial counsel. Frequent changes in the law and standards of practice may cause this information to become outdated and no longer applicable or incorrect.

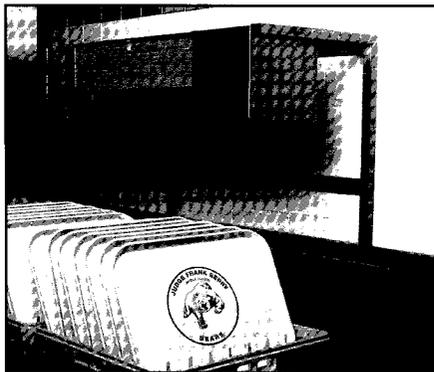
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