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## Damminix Tick Tubes Test results on Fire Island, N.Y.

The Village of Fire Island Pines, located on a barrier island off the southern coast of Long Island, was one of the first communities to comprehensively set about lessening its risk of Lyme disease by treating all of its homes with Damminix Tick Tubes. The Village contains about 400 homes, and it buys approximately 8,000 tubes of Damminix each season from Ecohealth Inc., and then hires a local applicator to put the tubes out all over the Village.

Because the order is so large and the location is convenient, Ecohealth took advantage of the opportunity to test the efficacy of Damminix in a large scale treatment. For eight years in the 1990's we sent a staff scientist every June or July to collect ticks both from Damminix-treated parcels in Fire Island Pines and also from untreated sites in the identical terrain adjacent to the Village that is owned by the Fire Island National Seashore.

Ticks were collected by dragging a fixed size cotton cloth across the ground for 30 seconds at a time at each site being tested. All ticks that attached to the cotton were removed and counted, and kept in separate jars for later examination. Forty or fifty sites were thus tested, and the researcher recorded the number of ticks collected per hour.

After collection, the ticks were cut open and examined under a microscope to determine whether they were carrying Lyme disease bacteria. A simple infection rate was then determined for the treated parcels vs. the untreated parcels, (e.g. if 80 ticks were collected, and 20 of them carried the infection, the infection rate was 25%).

By multiplying the number of ticks collected per hour times the infection rate in a tested parcel(s) a risk index was computed. That risk index measures the likelihood of a person encountering an infected tick in an hour of walking or gardening in the tested parcel(s).

It turns out, which is no surprise, given the epidemiology of Lyme disease, and the design of Damminix, that year after year, the risk was greatly reduced in the treated parcels. *There was approximately a 90% reduction in risk in every year that the product was put out.*

The data appear in the tables below. For the year 1997, in which an additional Fire Island community, (the Village of Saltaire), participated, and 1998, all of the data is presented. For the full eight year testing period, shown in the last table, only summaries are presented.

Comparing the risk of encountering infected ticks in Damminix-treated vs. untreated areas			
1997	National Seashore, (Untreated)	Fire Island Pines, (Treated)	Saltaire, (Treated)
Number of Samples	40	50	45
Ticks collected	38	18	11
Ticks collected per hour	114	43	29
Infection rate of the collected ticks	27%	6%	14% <sup>1</sup>
Infected ticks collected per hour	<b>31</b>	<b>3</b>	<b>4</b>
Percent reduction in exposure		90%	87%
<b>1998</b>			
Number of Samples	40	45	did not test
Ticks collected	100	21	
Ticks collected per hour	300	50.4	
Infection rate of the collected ticks	33%	17%	
Infected ticks collected per hour	<b>100</b>	<b>8.6</b>	
Percent reduction in exposure		91%	

Restating these results in plain language: On average, in 1998 a Fire Island resident or visitor would encounter 100 infected ticks every hour they walked in the untreated National Seashore, and only 8.6 infected ticks every hour they walked in the next door Village. The 1997 and 1998 results were not flukes, as the following table shows:

Infected Ticks per hour compared over an eight year period			
	National Seashore, (Untreated)	Fire Island Pines (Treated)	Percent reduction in exposure per hour to infected ticks in treated parcels
1991	40.3	8	<b>80.1%</b>
1992	245.1	9.5	<b>96.1%</b>
1993	66.5	0	<b>100.0%</b>
1994	285.3	5	<b>98.2%</b>
1995	59.3	3.7	<b>93.8%</b>
1996	292.3	6.8	<b>97.7%</b>
1997	30.8	2.6	<b>91.6%</b>
1998	100	8.6	<b>91.4%</b>

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<sup>1</sup> Notice that the infection rate of the collected ticks was significantly higher (14%) in Saltaire, (for which 1997 was the first year of comprehensive use of Damminix), vs. Fire Island Pines, (6%), which had used Damminix for years. And of course it was much higher, (27%), in the National Seashore, which had not used Damminix at all.