

FOUR POSTER PROJECT

In the early 1990's, concerned about the increase of tick-borne diseases throughout the US, several USDA scientists developed a device, called a "4 Poster", to kill ticks that feed on white tail deer. These are the ticks that are primarily responsible for Lyme disease and a number of other tick borne illnesses.

The concept of the 4 Poster device is simple. It consists of a deer feeding station stocked with corn. As a deer feeds on the corn, it rubs its head, neck, ears and shoulders against rollers which apply tickicide to the animal. Ninety percent of ticks on deer are located in the head and neck area. The tickicide used is 10% permethrin, the same tickicide used in clothing for deer hunters and lice-shampoo for children. The climate and the type of tick present determine how many months the 4 Poster needs to be in place. In Texas, for example, the mild climate means that the 4 Poster needs to be in place all year to be effective. In New York, it needs to be in place from March-November.

The 4 Poster has been tested in Texas, Maryland and New York. These tests indicate that 92-98% of deer ticks have been eliminated from the test areas after three years of continuous use of the 4 Poster.

I spoke with Jim Dougherty, the Town Supervisor of Shelter Island, New York. Shelter Island has had 4 Posters in place for four years. For the first three years, their program was under the auspices of Cornell University as an experiment. The experiment was a HUGE success and has significantly reduced the tick population on Shelter Island. Initially, there were 60 feeding stations on the Island, which is roughly the same size as Washington Island. Because of the decline in ticks and because Shelter Island is now funding the program, they have reduced the number of feeding stations to 20, which the scientists believe is an appropriate number to continue to contain the tick population. Dougherty urged us to try to get this program going as it has been extremely beneficial to Shelter Island in controlling its deer tick population.

Wisconsin has a prohibition on feeding deer in certain counties due to concern about the spread of chronic wasting disease. However, that prohibition does not include Door County. There are regulations that govern deer feeding which are listed on the DNR web site and which do pertain to Door County.

I have attached the following:

- An article from the American Lyme Disease Foundation describing the 4 Poster Bait Station
- A brief write-up from the Shelter Island Deer and Tick Management Foundation
- The Long Island 4 Poster Deer and Tick Study
- An article from the USDA on its Tick Control Project in the Northeast.



American Lyme Disease Foundation, Inc.

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'4-Poster' Deer Treatment Bait Station





Before Treatment



After Treatment

NOTE: Some states have approved the pesticide used in this device, but some also have regulations against the feeding of deer and other wildlife. Please check with your individual state as to current rules and regulations.

What is the Problem?

Tick populations of both the lone star tick, *Amblyomma americanum* and the 'deer tick', *Ixodes scapularis*, continue to spread geographically throughout much of the country, due in large part to a continued increase in deer herds throughout most of the United States. As tick populations increase so does disease risk, and there are currently ten known major tick-borne infections in the country affecting humans, most of which are carried by species of ticks which feed on deer. One published study has estimated that Lyme disease alone may cost society over two billion dollars a year. It is now apparent that controlling tick populations is a highly effective way to reduce local disease risk.

What is the '4-Poster' Deer Treatment Bait Station?

United States Department of Agriculture (USDA) - Agricultural Research Service (ARS) - Office of Technology Transfer (OTT) has granted an exclusive license of the ARS patented '4-Poster' Deer Treatment Bait Station to the American Lyme Disease Foundation, Inc. (ALDF). The device was developed by researchers J. Mathews Pound, J. Allen Miller, and Craig A. LeMeilleur of the United States Department of Agriculture (USDA) - Agricultural Research Service (ARS) and patented on November 29, 1994 under United States patent number 5367983.

The '4-Poster' device is specifically designed to kill species of ticks that feed on white-tailed deer and especially those for which white-tailed deer are keystone hosts for adult ticks. In this regard, two primary target species for '4-Poster' technology in the U.S. are the deer tick, *Ixodes scapularis*, that transmits agents causing Lyme disease, anaplasmosis, and human babesiosis, and the lone star tick, *Amblyomma americanum*, that transmits the agent causing human monocytic ehrlichiosis (HME). New tick-borne agents of infection have been identified, and the existence of yet others is suspected.

How does the '4-Poster' work?

The '4-Poster' basically consists of a central bin containing clean whole kernel corn used as a bait and two application/feeding stations located at either end of the device. As deer feed on the bait, the design of the device forces them to rub against pesticide-impregnated applicator rollers. The rollers in turn apply tickicide to their ears, heads, necks, and shoulders where roughly 90% of feeding adult ticks are attached. Through grooming, the deer also transfer the tickicide to other parts of the body. Studies (see below) have shown that use of '4-Poster' technology has resulted in the control of 92 to 98% of free-living tick populations in areas around the devices after three years of use.

What are basic requirements for maximum efficacy?

For maximum efficacy in areas where both deer and lone star ticks are found together, the '4-Poster' device should be maintained essentially on a year-round basis. An exception would be if temperatures remained below freezing for extended periods of time. In areas where only deer ticks are found, the devices should be maintained continuously from September through May to impact the entire adult feeding/breeding season. However, adult ticks are not active during prolonged periods of snow cover or below 45° F air temperature. Where only lone star ticks are found, maintenance of the devices from late January or early February through mid to late September will significantly impact both immature (larvae and nymphs) and adult stages on deer.

What have been the research results with the '4-Poster'?

Two studies have been completed, and data are currently being collected and compiled from a third larger study that involves sites in five states in the northeast. Sites that are deer-fenced or where movement of deer is otherwise 'controlled' have better results than 'unrestricted sites,' where deer are able to come and go as they please. Unfenced deer pick up ticks outside the immediate study area and thus are able to reintroduce ticks to treated areas. This is especially

true for adult deer ticks during the fall when deer (especially bucks) often expand their normal territorial range, and tick feeding activity is at its peak. Results may also vary depending upon the tickicide used.

Site one: Located near Kerrville, TX at the Kerr Wildlife Management Area, two 96-acre deer-fenced wooded plots were used to test efficacy of the '4-Poster' technology in controlling free-living populations of lone star ticks. A single corn-baited '4-Poster' was placed in each pasture, but only the device in one pasture was treated with an oily formulation of the tickicide amitraz. After three years, a 92 to 97% reduction in tick numbers was observed in the plot where deer were allowed to passively treat themselves at the device. Lone star ticks in this region of Texas characteristically have a one-year life cycle. In contrast, deer ticks have a two or three-year life cycle, and hence a meaningful level of control may take longer to appear.

Site two: Located at the Goddard Space Flight Center in Maryland (a single 600+ acre deer-fenced facility) an exceptional 96 to 98% reduction in free-living nymphal deer ticks was noted after three years of treatment using permethrin (tickicide).

Sites in five Northeastern States:

Data is currently being compiled after five years of study at sites in MD, NJ, NY, CT and RI. Treatment was terminated in the spring of 2002, but tick sampling will continue through 2004 because the tick's two-year life cycle necessitates observing efficacy of treatment for two additional years.

4-Poster 'Tickicide'

The EPA has approved a specially formulated 10% permethrin based tickicide for use in treating ticks on deer. As with any pesticide, labels regarding its safety are included with its shipment to the Licensed Pesticide Operator.

For additional information contact:

Dandux Outdoors

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[email info@dandux.com](mailto:info@dandux.com) (<mailto:info@dandux.com?subject=4-Poster%20Information%20Request>)



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Shelter Island Deer and Tick Management Foundation

Shelter Island 4-Poster Program

The Goal: To eradicate tick-borne diseases. This is a non-partisan issue. The 4-Poster program, which is designed to meet our goal, has been supported by a Republican, a Conservative, and a Democratic supervisor. Recent petition signatures have included 1,380 for the 4-Poster program and 79 against.

The 4-Poster System: Designed by scientists at the United States Department of Agriculture, the 4-Poster system lures deer with corn to a unit where their heads, necks and ears are swathed with permethrin, which kills the ticks.

The Tick Cycle: The two ticks that carry disease are the Lone Star and the Black-legged. Each has a two-year life cycle. They carry disease throughout this cycle, and only lay eggs at the end of their life. Although mice, rabbits, raccoons, and birds are hosts to ticks, the final host is the deer. If they are killed on the deer, they cannot lay their eggs. Thus the cycle is broken. That is the theory, which has been well tested throughout the Country, of the 4-Poster. It works over a four-year period.

Permethrin: This insecticide, very effective in killing ticks, is approved by the United States Environmental Protection Agency. It is used extensively throughout the Country. It is in shampoos used to treat lice in children, on clothes used by hunters, and sprayed on lawns and shrubs. There are four or five pest control companies that serve residences on Shelter Island, and one reports a client list of 400 which receive monthly treatments of permethrin.

The DEC's role: The DEC is not adverse to the use of permethrin. It is concerned, however, about the use of the 4-Poster system because it creates an environment, which encourages the congregating of deer. They are anxious to discourage that behavior out of fear of chronic wasting disease, for which there is no cure, that is sweeping across the country.

The DEC Cornell Study: Because there is no chronic wasting disease on Shelter Island or Fire Island, the DEC has agreed to allow the 4-Poster system on the islands as long as it is accompanied by a study of deer ecology and the monitoring of ticks over a four-year period. No study, no 4-Poster System. Although the DEC insists on the Study, they are not funding it.

The Cost of the System: The four-year program on Shelter Island will cost approximately \$1.125 million.

The Cost of the DEC Cornell Study: The four-year Cornell Study will be \$1,167 million, \$998,529 for deer ecology, and \$169,194 for tick monitoring.

Who will Pay for the System? The costs for the System are being paid by the Town of Shelter Island and the Deer and Tick Management Foundation, which was created as a 501(c)(3) corporation to support the Town's effort. The costs of maintenance, corn, Tickicide (permethrin) and rollers, signs, etc. are in the Town budget for 2008 and are intended to be in subsequent budgets. The Foundation purchased the 4-Poster units, and it paid for the first shipments of corn and Tickicide.

Who will Pay for the Study? The towns of Shelter Island and Saltaire (of which Fire Island is a part) are reaching out to other East End towns, the County, the State, and Federal sources. So far, the County has pledged, but not released \$155,000 for 2008, the State has pledged \$100,000 for 2008, and the people of Shelter Island, have generously donated \$128,000 to the Foundation, which has paid the \$128,000 to Cornell. So, if all the pledged money comes through, the \$367,088 budget for 2008 will be met. However, for the following three years, \$293,862 for 2009, \$261,404, for 2010, and

\$245,369 for 2011, funds will still need to be raised. This is why the County is being asked for \$155,000 for 2009 and the State will be asked for \$100,000 as well. A budget for the Study years is attached.

Shelter Island Deer and Tick Management Foundation May 2008