

# Immunocontraception for Deer Works!

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Immunocontraception is a method used to reduce fawn-production by the does of a deer-herd by vaccinating some of them with an agent that will temporarily prevent them from becoming pregnant. In combination with the normal die-off, this reduces the herd- size without resorting to lethal methods. The most commonly considered and currently used immunocontraceptive products are PZP and GonaCon. PZP (Porcine Zona Pellucida Vaccine) is the original product: it was discovered 37 years ago by Alex Shivers, at the University of Tennessee. It is currently being further developed by Dr. Jay Kirkpatrick. It is produced and distributed by The Science and Conservation Center in Billings, MT. GonaCon was developed by the USDA and is permitted for restricted use by the EPA. Both products are effective for reducing deer densities in enclosed parks and urban settings. PZP requires two applications for optimum efficacy and GonaCon claims efficacy with just one application. That difference is not significant since, as Dr. Kirkpatrick points out, after the first year each application of PZP is effective with one shot.



*Darting deer*

Immunocontraception is not a really “new technique”; It has been successfully used for wildlife since the late 1980s. The most accurate objective judgment of the efficacy of this method is simply “It works.”

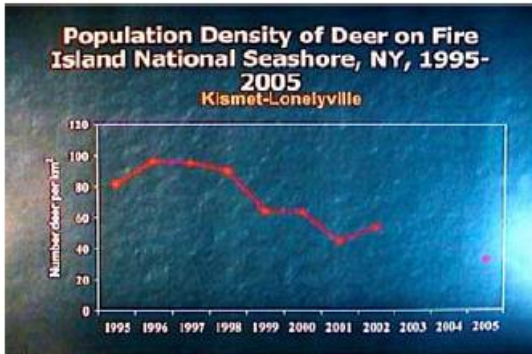
So this article could end right here if it were not for some economic, political and sociological interests who do not want to see immunocontraception used. The interest groups who argue against its use are the usual gang of suspects:

- Ø Hunting groups fear that it will reduce local governments’ tendency to buy into their claim that only hunting can control urban deer populations in areas where the deer density is above the social carrying capacity.
- Ø The DNRs (the state environmental conservation agencies) anticipate that using immunocontraception will accelerate the current steady decline of hunting license sales. They fear a steep loss of revenue to their wildlife management departments, which are currently primarily funded, directly and indirectly, through the sale of hunting licenses.
- Ø One federal agency relies on a source of income by functioning as an extermination service of “nuisance animals” to farmers, ranchers, and municipalities. They also fear a loss of revenue and quite possibly raising the more fundamental question: “Is there a need for that service by the federal agency government in the first place?”

As we look at their objections, let’s keep in mind the old saying: **“It’s hard for a man to understand an argument if his livelihood depends on not understanding it.”**

The most commonly heard objections to the use of immunocontraception are:

- Ø It doesn't work
- Ø It's experimental
- Ø It causes genetic or biologically debilitating harm to the target species or other species.
- Ø It's too expensive



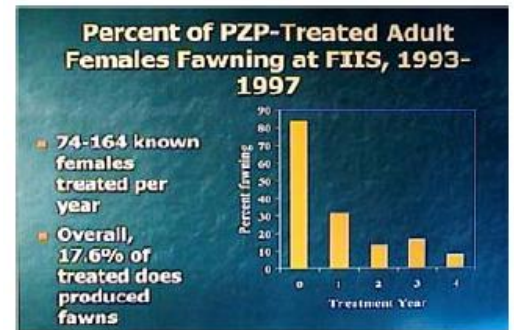
*Decline in does fawning since 1993 at Fire Island National Seashore, NY, 1995-2005. Used with permission of copyright holder: The Science and Conservation Center in Billings, MT*

where the does have not been treated - deer from those adjoining areas, where the deer density is now higher, will migrate into the target area and re-establish the original density. This is true - but, of course, that would happen no matter how the reduction of the deer-size is achieved. It is not an argument against using immunocontraception but, rather, an argument for using a coordinated effort of immunocontraception in wider areas.

### It doesn't work

The first argument seems false on the face of it. Many published and peer-reviewed cases in the scientific literature show that it does, in fact, work. Immunocontraception reduces the size of a given deer herd by decreasing the number of fawns born in spring. If after the normal fawn mortality the herd-size before the next rut is less than the herd-size prior to the rut at the time that immunocontraception was administered the herd size has been reduced. So it does work

A common secondary objection tagged on this one is: if the target area is contiguous to other areas



*Decline in deer density since 1995 at Fire Island National Seashore, NY, 1995-2005. Used with permission of copyright holder: The Science and Conservation Center in Billings, MT*

### It's experimental

In the layman's terms "experimental" equates to words such as "untried," "provisional" or "tentative:" Experimental as used by the FDA in describing the status of a medication means that it is not approved for commercial sale. Since the manufacturer of PZP, the originator of immunocontraception, has never applied to sell it commercially, it remains in "experimental" status. It is authorized for use with certain reporting requirements attached: it is in the same category as most medication used to treat cancer.

This argument is simply a ruse: it uses a technical term, which has negative cognates in everyday English, to scare the public and technically unsophisticated local government decision-makers.

### It causes genetic or biologically debilitating harm to the target species or other species

The allegation is that for various reason harm may be caused to the target animals or to other animals or people who are ingesting the meat of an animal that has been treated with immunocontraception. Basic biology assures us that the agent, which is a protein, cannot be passed on through the food chain. There was some early speculation that since the normal cycle of does going into estrus every thirty days is extended for two more cycles (ending in February/March instead of December/January) it might have a debilitating effect on the does or on the bucks servicing them. Empirical observation of has shown no evidence of that. It also has shown no significant change in social behavior. No substantial, empirically verifiable debilitating effect has been found in over 20 years of application.

### **It's too expensive**

The cost figure is the easiest argument for the opponents of the use of immunocontraception to put forth and the most effective, when aimed at legislative bodies such as city councils, town or village boards and county legislatures who are sensitive to not approving exorbitantly priced projects. The usually alleged price per doe vaccinated is estimated to be between \$500 and \$1,000. For a municipality seeking to reduce the urban herd-size by vaccinating 100 animals with an immunocontraceptive agent - that would come to \$50,000 to \$100,000; which represents a significant part of its budget. That putative price tag is much higher than a realistic estimate would lead us to.

There are two price components in each vaccination:

- 1) the cost of the dose
- 2) the cost of delivering the dose
  - a. the labor
  - b. cost of a delivery system
  - c. training

The cost per dose of PZP is about **\$30/dose**.

Labor cost is about \$15/hour

The time it takes to dart a deer varies greatly depending on the deer density of the region and some other factors. In a study by Allen Rutberg (Humane Wildlife Solutions published by Humane Society Press) the time it takes to dart a deer ranges from 1 hour up to 17 hours. The 17 hour time was definitely a statistical outlier that should probably be ignored. A conservatively high value to work with seems to be around 4 hours, which would make it **\$60 per deer vaccinated**.

The delivery system (a dart shooting rifle) is about \$1,000 - \$3,000; again taking the higher number, to be conservative, and amortizing the cost of the weapon over 500 deer

**the delivery system cost per vaccinated deer is \$6.**

Assuming we are in a park system where we would use the same workers to do the darting year after year - it would pay to send them for training which is \$200 per trainee plus an estimated \$1,000 additional for travel and lodging. Estimating each shooter's lifetime darting output at 200 deer (four years at 25 days with two deer darted per day) brings the amortized **training cost borne by each darted deer to \$6.**

The total cost comes to \$102 per deer. Darting 100 deer each year brings the total cost for the municipality's deer control program to \$10,200 per year. There is simply no reasonable assumption that will get the price per deer darted from \$102 to \$500 much less to \$1,000

The EPA, in its protocol for applying GonaCon, insists that the deer may not be darted. It must be captured, restrained and injected by hypodermic needle. That requirement, which has no apparent scientific basis, is highly labor-intensive and can make the cost per deer vaccinated approach the \$500 mark.

In summary,- a reasonable estimate of the cost of immunizing a deer is around \$100 per deer - it can vary from \$60 per deer to \$250 per deer depending on the deer density of the region and other factors. Without requiring capture, restraint, and inoculation by hypodermic needle there is no rational way to get that number up to or over \$500 per deer vaccinated.

The opponents of immunocontraception don't really have a case -- know the facts and present them at your next local public hearing session that seeks to permit bow-hunting in your local parks.