

Hot EQUINE ISSUES

PZP – Equine Contraceptive

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One humane way of dealing with wild horse overpopulation is contraception.

However, contraception does not reduce population rapidly, and it often increases the lifespan of treated animals, which do not go through the stress of pregnancy and lactation.



Porcine zona pellucida, or PZP, has been tested as a contraception for many wild animals since 1989, including white-tailed deer, black bears, tule elk, African elephants, llamas and alpacas, and wild

horses. It was developed to be an effective and humane alternative to other methods of controlling animal population, such as roundups or killing. When the vaccine wears off in a minimum of one year, normal conception and birth is usual.

PZP was developed into a viable vaccine at UC Davis, in

California, which supplies the vaccine to agencies such as the Humane Society of the United States (HSUS); Bureau of Land Management (BLM); National Park Services; The National

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What is PZP? How does it work?

A membrane known as zona pellucida (ZP) surrounds all mammalian eggs, and allows the attachment and penetration of sperm to the egg during fertilization. When pig ZP (PZP) is injected into a female animal, the female animal's body produces antibodies. These antibodies attach to the female's ZP proteins and prevent sperm from attaching to the membrane, blocking fertilization. PZP can be given to pregnant females without harming the fetus.

Each female animal needs to be injected twice, with the first injection being up to a year before a booster, to provide contraception for about a year in approximately 90 percent of treated females. A newer, one-injection method, with part of the vaccine being time-released, has been shown to be nearly as effective and is longer-lasting.

PZP is either injected by hand, or, as is more common, delivered via a dart fired from a dart rifle. After hitting the animal in the hip or rump, a small powder charge injects the vaccine and the dart falls off. The brightly colored dart is then retrieved.

Because PZP does not interfere with or prevent heat cycles and breeding, wild horse herd social behavior is not as affected as it would be if the horses were sterilized.

Wildlife Research Center; USDA-APHIS; and similar agencies of other countries around the world.

The BLM currently spends about \$200 per year to vaccinate each wild mare, and this includes the cost of the vaccine at \$21 per dose, plus handling costs.

The total cost of the wild horse contraceptive program is about \$250,000 per year. In comparison, housing and preparation for adoption of wild horses costs about \$19 million annually.

The PZP Wildlife Contraceptive Group, which carries out the active research on PZP, is made up of The Science and Conservation Center (in Billings, Montana), The University of California – Davis, the Medical College of Ohio, the University of Iowa, and the HSUS.

“We supply PZP to inoculate about 1,200 wild horse mares now each year,” said Jay. F. Kirkpatrick, PhD, Director of the The Science and Conservation Center, in Billings, Montana.

“Although the vaccine has a 90% success rate the first year, the efficacy of the vaccine is not the most important thing — the percentage of mares treated on the range is the important thing.

“The National Park Service

has been using PZP on Assateague Island for 20 years and now has zero population growth with their herd of 130 horses. There were about 175 horses when the program began, and mares averaged a lifespan of seven years. After mares had been inoculated once or twice, they began living an average of 10.5 years. After three or four times, they averaged 20 years. No mares had ever lived to 20 years previous to PZP inoculation.

“After a herd reaches the



new age of mortality, then the herd population reduction begins overall. The National Park Service is using PZP to keep herds at a manageable level on Assateague and at four other locations. We are now beginning to inoculate wild horses at horse sanctuaries in California and South Dakota.”

The National Park Service is also performing DNA tests on small herds of horses to ensure that isolated populations continue to carry the genetic traits that have made them unique.

When asked how he saw the future of PZP and population control, Kirkpatrick replied, “The National Park Service will continue to use PZP and to

solve their wild horse overpopulation. I have no idea what the BLM will do – they are blocked by social, cultural, political and economic problems.

“As to the domestic horse population, humans continue to breed horses with human-imposed values, and if they do not measure up, they are discarded. The Pryor Mountain Wild Horses are more biologically fit than anything you can find in a breeding operation.”

Some wild horse advocates worry that as the vaccine wears

off at different times of the year and mares may become fertile in fall or winter, foals are sometimes born during winter, and that this is

a severe hardship for both foals and lactating mares, especially in places like the rugged Pryor Mountains of Montana and Wyoming, or the high desert of southeastern Oregon where the Kiger mustangs live.

A study done with the Assateague, Maryland, wild horses, where winters are more mild, studied the effects of immunocontraception on season of birth and foal survival between 1990 and 2002. It concluded that of foals born to 77 treated mares, 64.9% were born in season. Survival of those foals did not differ significantly among foals born in or out of season.

