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What is PZP-22* and How is it Different?

PZP-22 is a long-acting formulation of PZP vaccine and includes a liquid emulsion dose of native PZP vaccine with an adjuvant (to stimulate a strong immune response), with three small slow-release pellets that can be given in a **single shot**.

The liquid emulsion dose of PZP included in PZP-22 acts as a primer vaccine and the timed-release PZP pellets are designed to release PZP at 1 month, 3 months, and 12 months, simulating booster vaccines and eliminating the need for someone to give boosters at two weeks and then again yearly (as is required with ZonaStat-H).

Consequently, the term PZP-22 **includes** the timed-release PZP pellets **and** the liquid emulsion dose of native PZP (ZonaStat-H).

Key Facts

- PZP-22 can be darted in a single shot
- Includes one dose of ZonaStat-H and 3 timed-release PZP pellets as boosters
- Treatment with ZonaStat-H booster 2-3 years later for extended contraception
- Field tested with wild horse mares and deer
- EPA Registration in progress
- *Read more to learn about the science and how to administer!*

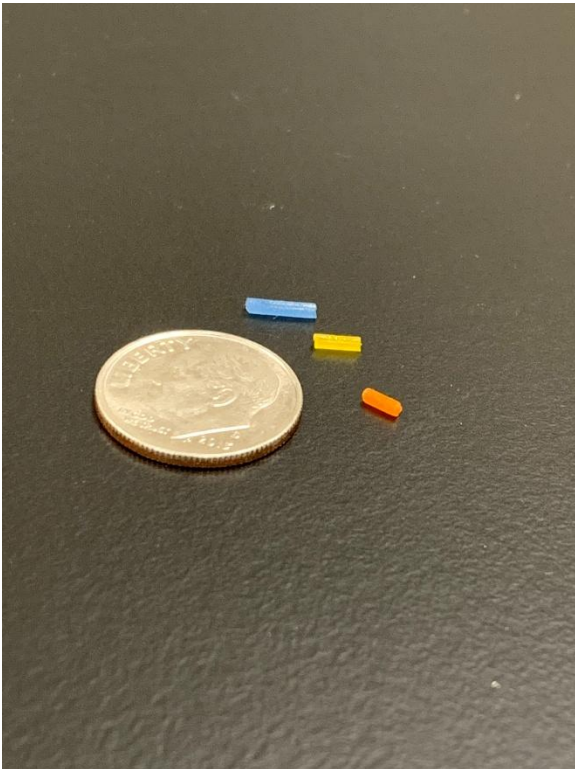
*If you have previously received the training for PZP, please contact Kayla Grams (contact@sccpzp.org) to discuss an add-on training specific for PZP-22.

Composition of PZP-22 compared to native PZP vaccine (ZonaStat-H)

	PZP	Adjuvant (mFCA)	1-month pellet	3-month pellet	12-month pellet
			PZP + Adjuvant*	PZP + Adjuvant*	PZP + Adjuvant*
Native PZP (ZonaStat-H)	X	X			
PZP-22	X	X	X	X	X

*The adjuvant (an immune system stimulator) used in the timed-release pellets of PZP-22 is called QA-21.

The timed-release pellets contained in PZP-22 are made of unique biodegradable polymers that are specially designed to dissolve in the body at 1-month, 3-months, or 12-months, respectively, releasing PZP and adjuvant (QA-21) into the horse at these particular times and acting as booster vaccine shots.



Pictured above: PZP-22 Timed-Release Pellets.

Vaccine Delivery Protocol and Training

PZP-22 has been demonstrated to be effective with hand-injection and field dart delivery (Rutberg et al. 2017, Carey et al. 2019). PZP-22 utilizes a unique dart equipped with an internal trocar and plunger that pushes the small pellets and liquid dose of native PZP into the muscle of the target animal. The dart needle is specially designed with 2-3 side ports to allow the liquid emulsion to be delivered quickly. When PZP-22 is delivered by hand, the liquid emulsion and pellets can be injected together (as with the dart system), or the pellets and liquid emulsion can be delivered from separate syringes (two separate injection locations). Like native PZP vaccine (ZonaStat-H) protocols, the initial treatment should be administered prior to the breeding season (in seasonally breeding animals). For horses, this ideal contraception window is December-March. After a single injection of PZP-22 we found 75% efficacy the first year and 40% efficacy the second year (Rutberg et al. 2017, Turner et al. 2008).

Based on research done in horses and deer, administering a single PZP booster 2-3 years after the initial PZP-22 treatment reduces fertility by 66-90% for three or more additional years. Boosters of native PZP vaccine or PZP-22 yield similar rates of fertility suppression, so PZP-22 followed by a native PZP booster vaccine (ZonaStat-H) 2-3 years later offers at least 5-6 years of effective contraception (Rutberg et al. 2017, Carey et al. 2019, Grams et al. 2022) ***Consequently, the SCC recommends a treatment protocol of the initial dose of PZP-22 (including the liquid emulsion dose of native PZP/ZonaStat-H), administered immediately prior to the breeding season, and a booster dose of native PZP vaccine (ZonaStat-H) administered no earlier than 2 years after the PZP-22 dose, based on currently available research.***

As with native PZP vaccine (ZonaStat-H or ZonaStat-D), applicator training through The Science and Conservation Center is required. This three-day hands-on contraceptive certification is typically offered monthly March-October. Please see the [training calendar](#) and the [training application](#) for more information. Additionally, a pesticide applicators license is required through your state agency which represents the EPA (e.g. in Montana it is the Montana Department of Agriculture) prior to receiving shipments or applying the PZP-22 vaccine to wild equids.

EPA Registration Status

Humane World for Animals (previously known as Humane Society of the United States) is working collaboratively with the SCC to apply for EPA (Environmental Protection Agency) Registration. All key ingredients used in PZP-22 are already either FDA Approved or EPA Registered, but because this is a new combination of components, a new EPA application required. Currently, we are compiling the data to submit the application package. We anticipate EPA Registration around the middle of 2028, although this date is subject to change.

If you are interested in utilizing PZP-22 and you want to receive updates on the registration progress, please contact Dr. Melissa Esser at the Science and Conservation Center (contact@sccpzp.org) or +1 (406) 652-9718).

How do I order PZP-22*?

Upon EPA Registration, if ordering from within the U.S., you may order PZP-22 through the website (www.sccpzp.org), phoning +1 (406) 652-9718 or emailing contact@sccpzp.org. For international orders please contact Kim Frank or Dr. Melissa Esser for shipping information.

*We recommend consultation with the SCC to discuss the best protocol for your situation. Please call +1 (406) 652-9718 or email contact@sccpzp.org.

PZP-22 FAQ's

When will PZP-22 become registered with the EPA?

We are currently in the process of putting together the information necessary for the application package for EPA registration. Based on our current timeframe, we anticipate registration status around the middle of 2028. However, these dates are subject to change.

Can PZP-22 be field darted?

Yes, PZP-22 has been successfully delivered remotely (via dart projector) to horses in Sand Wash Basin, CO and Jarita Mesa, NM along with deer in Hastings-on-Hudson, NY. PZP-22 utilizes a unique dart equipped with an internal trocar and plunger that pushes the small pellets and liquid dose of native PZP into the muscle of the target animal.

Do I need to use a second dose of PZP-22 as the booster?

No, research in the Cedar Mountains, UT and Sand Wash Basin, CO demonstrated that boosting horses that received PP-22 with native PZP vaccine yielded similar results as a booster with PZP-22. So, an initial treatment of PZP-22 (including the liquid emulsion native PZP vaccine) followed by a native PZP (ZonaStat-H) booster 2-3 years later offers at least 5-6 years of effective contraception over a 7-year period.

How long does PZP-22 last?

Initial field trials of PZP-22 in wild horses at Clan Alpine HMA showed fertility reductions of 90% in Year One, 75% in Year Two, and a full return to fertility in Year Four after one single dose of PZP-22. Follow up trials in Utah and Colorado yielded more variable fertility reduction after a single dose of PZP-22, however after administration of a single booster dose 2-3 years after initial treatment reduces fertility by 60-90% for three or more additional years which offers at least 5-6 years of effective contraception over a 7-year period.

When does the booster need to be given after the first dose of PZP-22?

Based on research in Sand Wash Basin, CO and Cedar Mountains, UT boosters were administered at 2 years (Sand Wash Basin) and slightly more than 3 years in Utah. Therefore, our current protocol recommendations are to administer the booster no sooner than 2 years after the initial dose of PZP-22. However, as more data becomes available these recommendations may expand.

What time of the year should PZP-22 be given?

Research findings highlight the importance of appropriate timing of the initial dose of PZP-22 on fertility reduction. Therefore, consistent with native PZP vaccine (ZonaStat-H) protocols, the initial treatment should be administered immediately prior to the breeding season (in seasonally breeding animals). For horses, this ideal contraception window is December-March.

How do I learn how to administer PZP-22?

As with native PZP, applicator training through the Science and Conservation Center is required. This three-day hands-on contraceptive certification is typically offered monthly March-October. Please see the [training calendar](#) and [training application](#) for more information.

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