

Pigeon Vaccination

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Summary of Recommendations : Please read Dr. Colin Walker's full document that he has kindly prepared for the ANRPB to share with Australian fanciers.

PMV Vaccine - Two doses of 0.5ml, 4 weeks apart, under the skin at the base of the neck, after 6 weeks of age, are given. Annual boosters are necessary. In high risk situations a first vaccination can be given at weaning, ie 4 weeks, but as each pigeon needs 2 shots after 6 weeks of age, this will necessitate giving 3 shots.

Rotavirus Vaccine - Two vaccinations of 0.5 ml are given under the skin at the back of the neck 4 weeks apart. Annual boosters are recommended.

Pigeon Pox - The virus is presented as a freeze dried pellet. This is dissolved in the supplied sterile diluent. After dipping a vaccination needle in the resultant liquid, a prick or scratch on the outside of the thigh is made. Given after 6 weeks of age . A single vaccination confers life time immunity.

Full Report

Vaccination is the key to preventing some of the most serious pigeon diseases.

Why Vaccinate?

Pigeons are vaccinated to protect against some of the common serious infectious diseases. Vaccination stimulates the body's defence system to build immunity to a particular disease, by exposing pigeons to either the live organism presented in a safe form (eg Pigeon Pox vaccine) or to a killed organism (eg PMV vaccine), or an inactivated organism (eg Salmonella vaccine) or part of an organism (eg Rota virus vaccine).

What Vaccines Are Available?

1/ *Paramyxovirus (PMV) Vaccine* - Two brands made from a killed La Sota strain of PMV virus are available, namely Poulvac (Zoetis) and Newcavac (MSD). PMV vaccines based on a live modified NDV4 strain of PMV are also available. Testing has shown that these vaccines do not generate as high a level of immunity in pigeons as the La Sota based vaccines and the use of a live vaccine in a situation where "wild" PMV virus is common poses the risk of simultaneous infection, viral recombination and the formation of new strains. The vaccines based on killed La Sota PMV strains are therefore preferred in pigeons.

2/ *Pigeon Pox vaccine* - Made by Bioproperties for the Australian Pigeon Company

3/ *Paratyphoid (Salmonella) vaccine* - Two pharmaceutical companies in Australia, Bioproperties and Treidlia both make Salmonella vaccines.

4/ *Rota virus vaccine* – Rotavax made by Treidlia.

Timing of Vaccination is Crucial

With most vaccines, but not all, it is usual to give two vaccinations. When two vaccinations are necessary, timing is crucial. The first dose sensitises the immune system and the second dose starts antibody production. Without the second booster dose, the initial vaccination only protects the pigeon for a short period of time, probably just weeks. The booster vaccination prolongs the protection period so that the pigeon is covered for about 12 months. An annual booster is then required to provide cover for a further 12 months.

In Summary

THE SENSITISING DOSE

- Sensitises the immune system
- Initiates antibody production, takes several weeks
- Protection provided is short lived, weeks to months

THE SECOND VACCINATION

- Increases immunity to protective level
- Provides cover for 12 months
- Cover is less protective as time passes since vaccination

THE ANNUAL BOOSTER

- Stimulates the immune system
- Provides cover for a further 12 months

This process is illustrated in the chart below. The vertical axis shows the level of immunity formed while the horizontal axis shows time in weeks. As can be seen, the first or sensitizing dose only stimulates a low and short term level of immunity. Timing of the second dose is crucial

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Chart provided – courtesy of PIRSA

How to use the Vaccines

1/ Salmonella (Bioproperties)

Preparing the vaccine:

The vaccine is presented as a freeze dried pellet. This needs to be kept frozen until use. The vaccine pellet is dissolved into 100mls of sterile water for injection. This is done by repeatedly rinsing the vial with sterile water (available through your vet) using a needle and syringe until all of the vaccine is dissolved in the 100ml bottle of sterile water. The vaccine mixture must be used within 2 hours of preparation. Each pigeon must receive 0.1ml of this mixture.

How to give the vaccine:

The vaccine can be given in 1 of 3 ways:

1/ 0.1ml injection under the skin at the back of the neck

2/ 0.1ml of vaccine can be given orally. The vaccine is equally well absorbed from the

lining of the bowel as from an injection under the skin. Using this method it requires very little effort to protect your birds.

3/ The vaccine can be added to the drinking water at the rate of 10mls in 5 litres of water to vaccinate 100 pigeons. All of this water must be drunk within 2 hours for the vaccine to be effective. Because this is difficult to achieve this is regarded as a less optimal method.

Two doses of vaccine are given 2- 4 weeks apart. Annual boosters are recommended.

2/ PMV Vaccine

Two doses of 0.5ml, 4 weeks apart, under the skin at the base of the neck, after 6 weeks of age, are given. Annual boosters are necessary. In high risk situations a first vaccination can be given at weaning, ie 4 weeks, but as each pigeon needs 2 shots after 6 weeks of age, this will necessitate giving 3 shots.

3/ Pigeon Pox

The virus is presented as a freeze dried pellet. This is dissolved in the supplied sterile diluent. After dipping a vaccination needle in the resultant liquid, a prick or scratch on the outside of the thigh is made. Given after 6 weeks of age . A single vaccination confers life time immunity.

4/ Rota Virus Vaccine

Two vaccinations of 0.5 ml are given under the skin at the back of the neck 4 weeks apart. Annual boosters are recommended. If the risk of exposure to Rota is significant then a vaccination course should be given any time after 6 weeks of age. Preliminary studies have shown , however, that the level of immunity produced following vaccination is short term (4 to 8 weeks) and does not fully protect against clinical disease. It is therefore important that a Rota vaccination is given in 4 to 8 weeks before the start of racing. This means that if the risk of exposure is low that vaccination can be delayed until this time. If earlier vaccinations have been given then a third vaccination should be given in the month prior to the start of racing.

Recommended Vaccination Program

1/After 6 weeks of age - Give a 0.5ml injection for PMV , 0.1 ml Salmonella given orally (Bioproperties vaccine). If there is a significant risk of exposure to Rota virus then give 0.5 ml Rotavax injection.

2/ 4 weeks later, same again, ie injection for PMV ; also 0.1ml Salmonella given orally (Bioproperties vaccine) Give second 0.5 ml Rotavax injection if risk of exposure to Rota virus is significant. In addition Pigeon Pox scratch on thigh.

3/ 4 to 8 weeks before the start of club tosses or racing. If already vaccinated against Rota a third vaccination is given. If no Rota vaccinations have been given then two vaccinations are given 4 weeks apart

Pigeon Salmonella Vaccine

Technical stuff - A vaccine has been developed by Bioproperties in Melbourne that confers immunity against Salmonella in pigeons. The vaccine contains a live Salmonella variety that has been modified (by removing one of its enzyme pathways) to make it harmless. The bacteria in the vaccine cannot reproduce itself and quickly dies after inoculation. It cannot establish infection in the birds. Before the bacteria in the vaccine dies however, it produces an endotoxin. The vaccine is particularly effective and stimulates a high level of immunity. This is due both to exposure to the bacteria itself and also the endotoxin.

Nature of the Disease - Salmonella is a type of bacteria and causes a disease called Paratyphoid in pigeons. Salmonella is carried within the bowel of many pigeons without causing disease. A trigger factor is often required (eg. overcrowding, low hygiene, stress, concurrent disease, poor diet etc.) for the bacteria to cause disease. These trigger factors, compromise the pigeons ability to fight infection, which in turn enables the Salmonella to cause disease. It does this by entering and sometimes penetrating the bowel wall. In the bowel wall, the bacteria causes an enteritis leading to diarrhoea. If the bacteria is able to penetrate through the bowel wall, it is carried in the blood stream to a number of target sites, in particular the gonads, liver, joints and membranes around the brain. Damage to the gonads leads to infertility, while diarrhoea, weight loss and neurological signs are also common. Salmonella is transmitted in race baskets. In mature race birds the most common sign and often the only sign of infection is a mild diarrhoea. Exposure in the race baskets, accompanied by the stress associated with racing, enables the bacteria to inflame the bowel wall, causing a softening of the droppings and an associated loss of form.

The vaccine prevents the birds from developing paratyphoid. It does not treat birds that are already diseased. Vaccinating birds that are already infected serves no purpose. If a loft is free of Salmonella, then the birds can be routinely vaccinated. If Salmonella is present in a loft, then every effort should be made to clear the bacteria from as many birds as possible prior to vaccination. Vaccination of birds that have been cleared of infection prevents them becoming reinfected. In lofts where the disease occurs, the sources of infection to new birds are birds in the loft called asymptomatic carriers, that carry the bacteria in their system without showing signs (these birds pass Salmonella in their droppings) and the loft itself (that is contaminated with these droppings). To get as many birds free of infection prior to vaccination, the loft is disinfected and birds are treated with an antibiotic such as Sulpha AVS that kills Salmonella for up to 14 days. The length of the antibiotic course will depend on the severity of the problem in the loft.

As a rough guide

1/ In a loft of healthy racing pigeons with no history of Salmonella - no pre vaccination treatment necessary, birds are vaccinated to prevent infection in race units which would lead to wet droppings and a loss of form.

2/ In race lofts with a history of Salmonella – some birds may be asymptomatic carriers, Sulpha AVS given for 10 days. Loft disinfected twice during this time, towards the end of

the antibiotic course. To disinfect a loft, birds are moved into other sections, the sections are scraped clean, a diluted disinfectant such as F10 or Virkon is sprayed onto all surfaces and allowed to dry before allowing the birds back in. This is best done on the morning of a warm day so the loft dries quickly.

3/ In racing lofts with current infection and all fancy pigeon lofts, as above but Sulpha AVS given for 14 days. If individual birds with Salmonella fail to respond they should be removed to a separate area and treatment continued or culled.

The aim of treating the loft with the antibiotic Sulpha AVS is to eliminate Salmonella from as many birds as possible prior to vaccination. The degree of effort used to treat a loft is tailored to the degree of problem that Salmonella is causing in that loft. If antibiotics are required then this treatment needs to stop two days before vaccination. This is because the antibiotics can kill the live modified strain of Salmonella bacteria in the vaccine and therefore decrease the vaccine's effectiveness. At the same time it is important that the vaccine is given no longer than two days after the antibiotics stop. Delaying vaccination any longer provides an opportunity for successfully treated birds to become reinfected with Salmonella (either from the loft environment that may be contaminated or individual birds that are persistent carriers of Salmonella) prior to vaccination. Although it is not possible to eliminate Salmonella from all carriers, this protocol enables the clearing of infection from as many birds as possible prior to vaccination. A second booster vaccination is given 2 to 4 weeks later.

In summary, when antibiotic treatment is indicated, treat with Sulpha AVS (1 teaspoon per 4L) for 10 to 14 days, wait 2 days and vaccinate the birds. Two to four weeks later vaccinate the birds again. Over time, as all young birds are vaccinated each year, the loft immunity will improve and the incidence of clinical and carrier cases of Salmonella will decrease.

Fancy pigeons: A number of fancy breeds, notably Australian Show Pen Homers, Modenas, Kings and the performing flying breeds such as tipplers, tumblers and doneks, have a genetic susceptibility to Salmonella. Young birds should be vaccinated at six weeks of age, hopefully before the bacteria has had a chance to enter their system. A booster is then required 2 to 4 weeks later and then annually thereafter. Vaccinating young birds each year before they become infected, means that their gonads are less likely to be damaged by Salmonella during growth, thus leading to a lift in fertility in the loft generally. The best time to give annual boosters is after the moult and show season and before breeding ie. July.

Racing pigeons: In lofts with no Salmonella problem, vaccination is recommended once all young birds are over 6 weeks of age, with a booster 4 weeks later. Vaccination should be done at the latest 6 weeks before racing commences. Annual boosters are given after moulting and before racing each year to the old birds. How to use the vaccine - The vaccine is available in a vial as a freeze dried pellet. This needs to be kept frozen until use. To prepare the vaccine for use the pellet is dissolved into either sterile water or tap water depending on how the vaccine is to be administered. The vaccine once prepared

must be used within two hours.

The vaccine can be given in 1 of 3 ways:

1/ A 0.1ml injection under the skin at the back of the neck. The vaccine is dissolved into 100ml of sterile water for injection to create 1000 doses. This is done by repeatedly rinsing the vial with sterile water (available through your vet) using a needle and syringe until all of the vaccine is dissolved in the 100ml bottle of sterile water.

2/ 0.1ml of vaccine can be given orally. The vaccine is equally well absorbed from the lining of the bowel as from an injection under the skin. When giving the vaccine orally you need to be clean but not sterile. 100ml of tap water can be used to dissolve the pellet. If smaller numbers of birds are to be vaccinated the pellet can be divided using a Stanley knife or similar and then dissolved into an appropriate amount of water. For example a quarter of a pellet is dissolved in 25ml of water to provide 250 x 0.1ml doses. Half the pellet is dissolved into 50ml to make 500 doses. The rest of the pellet is returned to the freezer ready to prepare the second dose 2 to 4 weeks later. This is the method I recommend and use on my own birds. Using this method requires very little effort to protect your birds.

3/ The vaccine can be prepared as above but then added to the drinking water at the rate of 10mls in 5 litres of water to vaccinate 100 pigeons. All of this water must be drunk within 2 hours for the vaccine to be effective. Because this is difficult to achieve, this is regarded as a less optimal method. Fanciers can expect some vaccinated birds to be a bit quiet and 'fluffed up' on the day of vaccination. Using the Salmonella vaccine in conjunction with the other vaccines.