

# Feeding An Airgun: Thoughts On Selecting Pellets

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Varmint hunters are known to spend a considerable amount of time and money concocting the best loads for a favorite varmint rifle. Type and

weight of bullet, type and charge of powder, brand of primers, etc., can be varied almost endlessly. Although it is not possible to vary the propellant, airgun shooters have available an enormous range of projectiles. It might be assumed that most types of pellets would perform about the same, but this is not so.

The most popular airgun calibers are 177 and 22, but the 20 and 25 have many fans, the author among them. The vast majority of pellets are available in both 177 and 22 calibers, and although the selection of 20 and 25 pellets is more limited, it is fairly extensive. Much of what follows is equally applicable to all airgun calibers. If you are new to varmint hunting with airguns, you may not be aware of all of the pellet options available. This introduction may help.

## TYPES OF PELLETS

Even though there have been great changes in airguns over the years, the progress in pellets has been equally great. Gone are the days when you walked into a store and walked out with a can of wadcutter pellets, the only type available. Today, an airgun shooter has a choice of wadcutter, domed, pointed, hollow-point, or polymer-tipped styles. There are specialty pellets that are made of alloys that do not contain lead, some that have a hard metal core in a plastic sabot, and some that have a steel ball embedded in the head of a lead cylinder. In a single article, it is impossible to provide a complete evaluation of all the types of pellets available in terms of their performance, but we will give an overview of the field.



**The most common types of airgun pellets are (left to right) wadcutter, domed, pointed, and hollow-pointed.**



**Note the difference in the 7.9-grain and 10.5-grain Crosman Premiers in 177 caliber.**



**The difference in size between 177 and 22 caliber pellets makes it easy to see why the larger calibers are more effective.**



***The polymer-tipped Predator gives excellent accuracy and penetration.***

#### **LEAD PELLETS**

Throughout most of the airgun era, pellets have been made of lead. Airguns operate at much lower pressure than do firearms so the pellets had hollow bases (known as the skirt section) and they were made soft in order to give a gas seal. Most of the weight of a pellet is in the front section (known as the head). The overall shape of the pellet is such that most of the middle area (known as the waist) does not make contact with the bore in order to reduce friction. In most cases, the head has a diameter that is approximately equal to the bore, but the soft skirt is slightly larger in diameter so it becomes squeezed down during firing. Early pellets were essentially lead cups that were substantially hollow. Consequently, these pellets flatten or rivet on impact.

As the name implies, wadcutter pellets have flat heads, and they give a clean, circular signature on paper targets. In fact, pellets used in match shooting (but not field target shooting) are almost always of this type. As airguns became more powerful, pellets have been designed with domed or pointed heads to minimize velocity loss at the longer ranges at which such airguns are used. Although the ballistic

coefficients of all airgun pellets are low, the pointed and domed styles retain velocity much better than do wadcutters. Some of the outstanding wadcutter pellets are the Crosman Copperhead, RWS Meisterkugeln, Gamo Match, Daisy Match, and Beeman H&N Match. Because good wadcutter pellets give outstanding accuracy, they are useful for dispatching small pests which do not require much penetration.

Pointed pellets are available from most manufacturers. Those from Daisy and Gamo have rather sharp points, but the bodies of these pellets have large cavities, and the skirts are quite thin. This is also true of the Beeman Silver Jet and to some extent the Silver Sting. The pointed pellet from Crosman has very solid construction and a shallow cavity. Consequently, this pellet gives outstanding penetration with minimum deformation, and it retains velocity well. The RWS Superpoint also is a popular pointed pellet.

Over the years, Crosman Corporation produced several types of repeating rifles. Most were bolt-action models, but one was a lever-action, the Model 99. These rifles utilized an inline magazine that held pellets that were pushed forward in a tube by a spring-loaded follower inside the tube. Regardless of

the type of feeding mechanism, soft pellets can become deformed and jam the mechanism. To minimize this problem, most Crosman pellets are made of an alloy that is harder than pure lead. As a result, Crosman pellets give excellent penetration with a minimum of deformation.

Domed pellets have become quite popular for all-around use, and there is a rather wide selection of such pellets. These include the RWS Superdome, Winchester Hunting, Beeman Ram Point, Laser, Kodiak, Gamo Hunter, and others. The Crosman Premier is an excellent domed pellet that is available in 177, 20, and 22 calibers. Two versions of the 177 Premier are available that have weights of 7.9 and 10.5 grains. The heavy pellet has a high ballistic coefficient and gives deep penetration. It is a popular choice for use in magnum 177 rifles. Both the 20 and 22 caliber Premiers weigh 14.3 grains.

There is no use having a large part of the energy of a pellet expended on the landscape. Over-penetration can be controlled by expansion of the pellet. In recent years, hollow-pointed pellets have become popular for use on targets that do not require deep penetration. Birds fall into that category, and one of the outstanding hollow-points is appropriately named the Beeman Crow Magnum. Other hollow-points are the RWS Super-H-Point and the new Crosman Destroyer. Expansion of these pellets is excellent over a wide range of velocity, and they deliver a heavy blow.

#### **SPECIAL PELLETS**

In recent years, pellets having creative designs have become common. Because lead pellets flatten on impact, penetration is reduced. One approach to obtaining greater penetration is to make pellets of a harder material. The Gamo Raptor is of this type of pellet that is made of an alloy known as PBA (performance ballistic alloy). Because of the light weight, Raptors give high velocity (which is advertised as 25 percent higher than conventional pellets). How-



**Note the excellent expansion of the 22 caliber Beeman Crow Magnum after it had penetrated a gallon jug of water. The head diameter of the expanded pellet is 0.255 inch.**



**These are a few of the special 177 caliber pellets. They are (left to right) Crosman Destroyer, Gamo Rocket, Gamo Raptor, Crosman hollow-point, and Daisy lead-free.**

ever, according to my chronograph, the velocity increase is somewhat less than that optimistic figure. Being very hard, they do give excellent penetration. Originally offered in 177 caliber, a 22 caliber version is now available.

Another approach is to produce a pellet composed of two parts. The inner part is made of a hard metal such as zinc and the outer part is a sleeve or sabot made of plastic which protects the bore. Pellets of this type are light in weight so the velocity is higher than that given by lead pellets. One pellet of this type is the Skenko that is available in 177 and 22 calibers in several forms. Before you run out and buy a large supply of any of the specialty pellets, get a few and try them for accuracy in your rifle. Pellets of this type are sort of analogous to the hypervelocity rimfire cartridges. They may be fast, but accuracy may not be equal to that when other types of pellets are used.

One of the most successful specialty pellets is the Predator. This pellet has a red polymer tip in what is otherwise sort of a hollow-point design. This sounds like another pointed pellet, but there is one significant difference. The Predator gives near target accuracy in most airguns that I have used them in. It is not just a clever design, it is a clever

design that performs extremely well.

Airguns do not dispatch pests by a hydraulic effect that turns them into mist. It is necessary to place the pellet precisely so it will penetrate into a small lethal zone. Therefore, accuracy is the major component of pellet performance. Although penetration is required and a certain amount of expansion may be helpful, the first requirement is to hit a small target. My advice is that for larger pests you should select a few types of pointed or domed pellets and try them in your airgun. Because I like to use an airgun at ranges of 35-40 yards, my accuracy requirement is that the pellets chosen must give one-inch or smaller groups at 25 yards. For use on smaller pests and birds where less penetration is required, wadcutter and hollow-pointed pellets work very well. Get a few types to test in your airgun and select the most accurate. In the quest for accurate pellets, by all means try the Predator and other special designs. They may be just what you are looking for, but you won't know until you try them.

Not only is the selection of airguns for varmint hunting extensive, but there also is an enormous number of pellet types to feed the airgun. Airgun shooters have never had it so good.



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