By John T. Buck

While all QDMA members are dedicated to the principles of Quality Deer Management, without Quality Woodland Management, your efforts will not achieve their full potential. Recently, my father and I embarked on a major project to improve the habitat for all wildlife on our property in Pike County, Pennsylvania.

After convincing my father that we had a problem regarding the mature forest and absence of understory browse due to deer overpopulation, I devised a plan to address this problem. I wanted to increase food supplies by removing several hundred trees that had no fruit or nut bearing capabilities and replace them with trees that did. In many parts of our property, thick pine stands were preventing sunlight from reaching the ground and growth of desirable wildlife forage. Many white, red, and chestnut oaks had not produced adequate supplies of mast in years due to competition from maples and pines. We decided to remove these trees by creating four new fields and planting apple trees in their place. We recognized that such a project would be very time and labor intensive, but we were up to the challenge.

We used two articles in Quality Whitetails by Kent Kammermeyer (Apples for Deer, Volume 7, Issue 3, and Crabapples For Deer, Volume 8, Issue 1) as the basis for our plan. The actual plan consisted of five parts: 1) finding sites and determining out soil requirements 2) purchasing trees 3) soil preparation and planting 4) pruning and training 5) fertilization and irrigation.

In January 2001, we put our plan in motion. We began by cutting and clearing the majority of undesirable trees from the field areas. Our largest field, named the “Wood-Road Stand,” was approximately 1/2 acre.

Ample sunlight is key for maximizing fruit production. While some fruit plants can survive in partial shade, most require direct sunlight to fuel the energy-intensive fruit production process. Rapid drying of the tree canopy reduces the need for fungicides and is important in preventing disease. Early morning sunshine is particularly important for drying dew on the leaves. After tracking the movements of the sun during the previous summer months, we were able to remove trees selectively, ensuring at least five hours of direct sunlight for the remaining trees.

To build a good orchard, you need a good foundation. The ideal site is rolling or elevated so cold air can drain during spring frosts. Figure 1 (facing page) shows the typical site arrangements. Site A is a warm location that receives more sun.
This site is not affected by spring frosts, because cold air drains to lower lying areas. Site B also misses late spring frosts, but the top may be too cold in winter because of exposure. Site C is similar to site A, but colder, warming up late in the spring. Site D is the most susceptible to spring frosts because cold air drains into it from elevated areas. Site E can still be frothy but the woods act as a windbreak. Site F is not desirable because of the dense woods at the base of the hill. Woods can trap cold air and prevent it from draining to lower-lying areas. Site G is similar to Site B.

Slope exposure should be considered for its effects when the fruit trees come out of dormancy. A south-facing slope warms up fastest in spring than a north-facing slope. East-facing slopes are intermediate. In mid-Atlantic areas, such as Pennsylvania, a west-facing slope tends to be windier. Wind can cause spraying problems during the growing season. Selecting a site for an orchard involves below ground considerations as well, primarily soil depth and texture. An old recommendation for a desirable orchard soil is that it be deep and well drained.

Although soil pH and fertility are very important, soil drainage is often more important. Soil pH and fertility can generally be corrected through applications of lime and fertilizer. Avoiding poorly drained soils is important because they have low oxygen levels, which can greatly reduce growth or even kill the trees. Before selecting an orchard site, consult a county soil map. These maps are available at most Natural Resource Conservation Services offices in Pennsylvania and other states.

The best soil is a well-drained loam a minimum of 3- to 4-feet deep. Good drainage, however, should take preference over depth. In Figure 1, soils at site B are most likely to be the shallowest because of erosion, while those at site D tend to be the richest. Soil fertility should be medium to low. Overly fertile soil can lead to excessive tree growth at the expense of fruit production. It is easier to add fertilizer to increase tree vigor than to try to reduce vigor. Fruit trees grow well in soils with a pH of 6.0-6.5. Higher or lower levels can cause nutrient deficiencies.

If you are replacing an existing orchard or establishing a new one, take a soil sample after removing as many trees and roots as possible. Soil test kits are available from most county extension offices. There is a fee, from $6 to $10 per kit, which includes soil analysis and fertilizer/lime recommendations. Be sure to specify the tree species you intend to grow, since nutritional and pH requirements vary according to fruit type.

Our Penn State University report showed nitrogen, phosphate, potassium (also called potash), magnesium, and calcium levels, as well as soil pH. Suggested fertilizer application rates were provided along with the levels. Our report had three sections. First, the pH adjustment showed the amount of calcitic limestone needed to raise the soil pH to the desired level. Second, the magnesium and calcium section showed the amount of epsom salts (magnesium sulfate) and gypsum needed. Finally, the plant nutrients needed included indicated the amount of other fertilizer components required.

When purchasing fruit trees, the old adage “you get what you pay for” comes to mind. This is especially true with apple trees. Bargain plants may not be healthy or not adapted to your area. Buy only recommended varieties from a reliable source. A

**Continued on next page.**
You should prune apple or pear trees the first year after planting. Here is an example of before pruning (A) and after pruning (B) — cuts are marked in yellow. Remember to head the central leader (the tall, middle stem) back by 1/4 to 1/2 its length each year. The inset shows how the tree should appear when viewed from above.

Standard trees are propagated on seedling rootstock and produce large trees up to 30 feet in height. Semi-dwarf trees are propagated on one of the clonal rootstocks and produce trees about three-fourths the size of standard trees if grown under similar circumstances. The most common semi-dwarf rootstocks used for apples are EMLA 7 (5-15 feet tall), EMLA 106 (5-18 feet tall), and EMLA 111 (7-20 feet tall). Trees on EMLA 7 produce the smallest trees, while the trees on EMLA 106 produce the earliest bearing trees. The EMLA 106 and 111 rootstocks produce the larger semi-dwarf trees.

After discussing the varieties suited for my area with my local biologist, I selected those that best met my objectives. For the four areas with good drainage, poor soil fertility, and proper preparation, Freedom, Liberty, Sweet-16, Anoka, Harelson, Hislip, and Indian-Summer on an EMLA 7 rootstock proved the best choice. The EMLA 7 rootstock is the most widely-planted, freestanding semi-dwarf to date. The trees are well-anchored, hardy, and produce well in a dry season. After discussing what types of trees to plant with Tom Callahan from Adams County Nursery, we decided to also plant Hyslop and Indian Summer crabapple trees. I chose this nursery because of their reputation and quality products, which is very important when choosing a nursery.

When the fruit trees arrive from the nursery, open the bundles immediately and inspect them for damage. A good rule of thumb is to soak the roots in water for 1/2 to 1 hour before planting. It’s very important to keep the roots moist when planting. We used a 16-gallon clothes bin filled with water for this purpose. Never expose the roots to full sun or drying winds; it will ultimately stunt the growth of the tree.

It is important to dig a hole two feet wider than the spread of the tree roots and deep enough to prevent crowding. The tree should be planted at the same depth it was in the nursery. Always keep the graft union a few inches above the soil line. Keep the root pruning to a minimum, by keeping the roots 12-18 inches long. Cut away any dying or mutilated roots.

Work the soil in and around the roots. When the hole is half full, firm the soil with your feet before filling the rest of the hole. It is important to add lime at this point, preferably 10-15 ounces mixed with topsoil and the soil removed from the hole. Then place 25 pounds of lime around each hole, in a circular pattern, approximately three feet out from the tree to help raise the pH level (amounts of lime required will vary by location, check your own soil test recommendation). Do not place any fertilizer in the planting hole or fertilize the soil immediately.
after planting—it can kill the tree. Fertilize only after the soil has been settled by a soaking rain (see specific recommendations later in this article). After planting, apply enough water to thoroughly soak the soil around the roots. This will improve soil contact with the roots and help eliminate any air pockets.

Remember, approximately 1/4 of the root system was removed when the tree was dug. To compensate, remove the top 1/4 of the tree to reestablish the previous “shoot-to-root” ratio. As a general rule of thumb, cut the whip back to about 27-30 inches from the ground after planting.

In branched trees, remove poorly spaced and narrow-angled branches. Leave branches that are wide angled and arranged spirally about 6-9 inches apart up the leader. Branches left on the tree should be reduced by up to one-half of their length, and the leader should be cut about 12-15 inches above the top limb. Cut the leaders on non-branched whips to three-quarters of their original length.

Just below where the whip was cut off, three to four very strong shoots will develop and grow almost in an upright direction. To form a “central leader” tree, leave the uppermost of these shoots growing straight up and develop four or five scaffolds, which will grow out almost horizontally. When these shoots are three to five inches long, a clothespin will be put to good use. Very gently, bend down the limbs developing below the leader, and on the trunk of the young tree, clip a clothespin just above each limb. These shoots will continue to grow and turn up, which is exactly what you want them to do. After eight weeks, remove the clothespins and check for other developing shoots that may fill a void. If there are any, clothespin them as well.

Completely remove any unwanted strong shoots. When viewed from above, it should resemble a “starfish” pattern. Occasionally, a tree does not grow as well as it should during the first year. In this case, prune the tree back to a whip and start over again. Fruiting will be delayed by a year, but it will be a much more manageable tree. It is also very important to protect your investment with wire cages. We used 4-foot tall field fencing cut to 16-foot lengths, secured with sturdy wooden posts and electrical ties. This method will allow your trees to reach maturity without resident deer eating the leaves or rutting bucks stripping the bark with their antlers.

Continued on page 58.
The Power of Food Bait in a Scent

Buck Snort is a strong gel attractant that draws a buck to its intense aroma. Natural flavors are formulated into highly concentrated scent-gels for easy and effective application. By emulating the smell of natural fruits, deer are drawn to the smell of foods they love. The attracting power of sweet, aromatic scents are multiplied during periods of cold weather when natural sweet smells & food sources decline.

Powerful NEW Scent Attractant

Visit our website at: EHotOutdoors

Feel a puddle of Buck Snort anywhere you want & watch it work!

Four powerful gel attractants that allow hunters to attract hungry or curious bucks to the smell of favorite foods without baiting. The big 12 oz. bottle allows the hunter to use plenty of Buck Snort without fear of running out. Buck Snort is also very effective as a cover scent to hide human odor or other foreign smells.

Fresh Apple

During the second growing season, develop a second layer of scaffolds 24-36 inches above the scaffolds you established the year before. Be sure to clothespin the second level to develop wide crotch angles. Limb spreaders can aid in bringing about earlier fruit production, improved tree shape, strong crotch angles, and improved fruit color. Spreaders can be either short pieces of wood with sharpened metal nails driven into each end or sharpened metal rods.

Always spread the tree before pruning, which consists of entirely removing undesirable upright limbs and reducing the length of new shoot growth by one quarter. Limbs should not be spread below a 60-degree angle from the main trunk. Limbs spread wider than 60 degrees tend to produce vigorous suckers along the top of the branch and result in reduced terminal growth. The spreaders should remain in place for 1-2 years until the branch stiffens up.

This apple tree has been fertilized—notice that is not fertilizer on the tree itself—and protected from browsing white-tails and rub-mined bucks by the wire and plastic tree protector (white plastic sheath) cups at minimal precautions.

Continue to head back the new terminal growth by one-quarter each year and remove any upright limbs. Any broken or diseased limbs also should be removed. Always maintain the central leader as the highest point of the tree. The ends of the primary and secondary scaffolds should be kept below the top of the tree. Prune the tree every year in late winter (February or March).

QUALITY WHITE TAILS
During the dry, summer months, it is very important to have an irrigation system in place to ensure your trees get the water they need. Whether the grower will have sprinklers in place or water each tree manually, lack of water can destroy the orchard.

As you can see by the photographs, our project was well planned. After doing plenty of research, we learned how to prepare the soil, plant the trees, and how to properly maintain them. Without discussing our plans with trained professionals, our project would have taken much longer and resulted in wasted effort and money.

In years to come, we look forward to our trees producing vast amounts of high-quality mast and fruit for the deer and other wildlife on our property. This will help attract and hold both bucks and does, enabling us to do our part as game managers to balance the herd through selective harvest. We anticipate this challenge and will continue to share our beliefs that, through hard work, determination, and proper knowledge of QDM, projects like this can be accomplished by anyone with vision and commitment.

Apple trees are generally fertilized with nitrogen each year. Phosphorus and potassium are needed in relatively large amounts until the tree reaches maturity. Keep in mind that your soil fertility may differ greatly from mine and your soil test will indicate this. However, for most soils, the following applies. One month after planting, broadcast one cup of 10-10-10 over a 2-foot circle if the tree has made six inches of growth. Keep the fertilizer six inches away from the trunk and broadcast it over the recommended areas.

One month later, broadcast another cup of 10-10-10 around the tree. In early spring of the following year, broadcast 2 cups of 10-10-10 over a 3-foot area. Again, avoid contact with the trunk of the tree and repeat this process in June. In succeeding years, use the following guidelines for the different trees.

For the semi-dwarf trees we planted, we will broadcast 4 cups of 10-10-10 fertilizer over a 4-foot circle around each tree in their third and fourth growing seasons. Trees in their fifth and sixth growing seasons should receive 6 cups of 10-10-10 over a 5-foot circle. Trees six years old and older should receive only nitrogen at a rate of two cups of ammonium nitrate per tree broadcasted over a 5-foot circle.

WILDLIFE TRENDS

Practical Wildlife Management Information

Introducing Wildlife Trends, a new monthly publication for landowners and wildlife enthusiasts who want to attract and keep healthier and superior wildlife year round. Each month you will learn from professional land managers and wildlife biologists how to improve wildlife habitat on your property using the latest research based information available.

Everyone knows the cost of trial-and-error. You can avoid "wheel spinning" by using the proven methods and professional advice you get in Wildlife Trends. Featured articles cover management practices for deer, turkey, dove, and quail as well as pond management and backyard habitat enhancement.

If you spend any money on wildlife and game management on your property, Wildlife Trends can save you from making the same costly mistakes. The advice from a single article can save you the cost of your subscription. And we offer a money back guarantee if you are not completely satisfied.

1 Year Subscription (12 issues) with Library Binder $125.00
2 year Subscription (24 issues) with Library Binder $225.00

To subscribe or request a complimentary copy, please call today.
800-441-6829
www.wildlifetrends.com