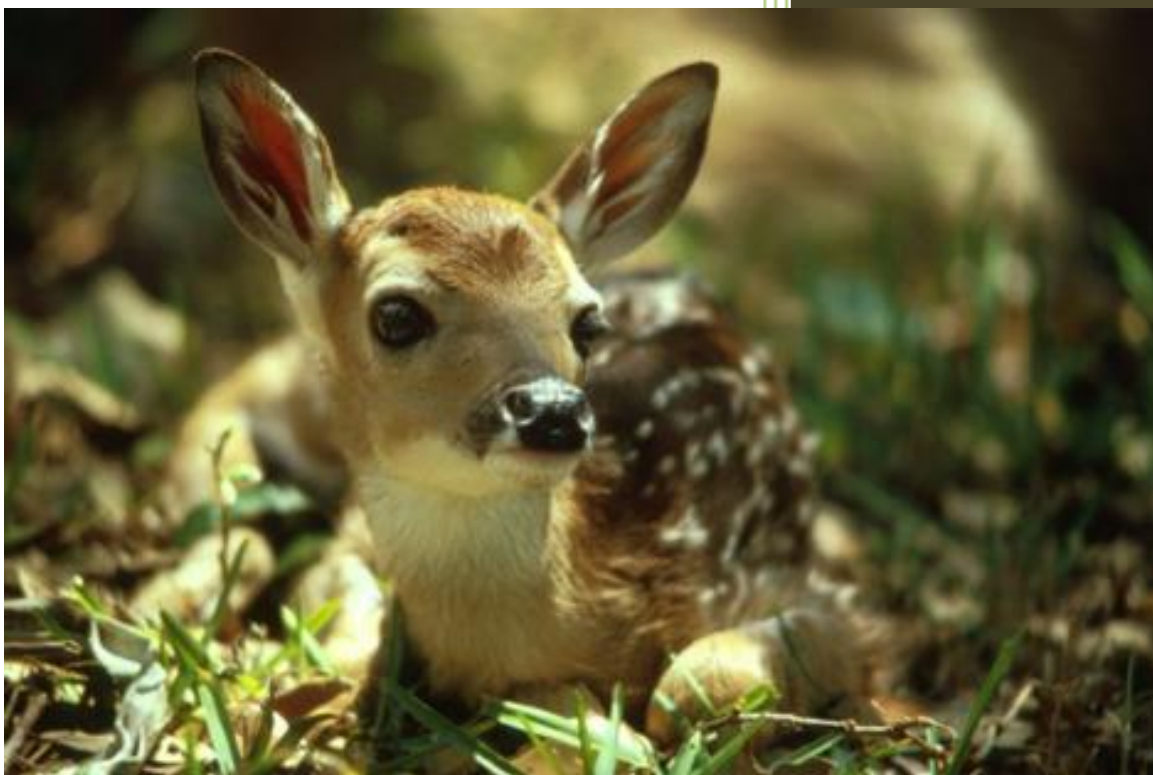


QUALITY DEER MANAGEMENT



Compilation of QDMA Articles

[2010]



The following is a compilation of important articles written by leading biologists and QDMA representatives. Information is the only path to a brighter future for Beaver Island. Enjoy!

Contents

QDM Quick Facts _____	3
The Biology Behind QDM _____	4
A Glut of Does Harms Bucks _____	7
The Importance of Harvesting Antlerless Deer _____	11
Food Plots (March 2004) _____	13
More Info _____	15

QDM Quick Facts

-A natural buck to doe ratio is about one buck for every doe. (pg 5)

-So what does this all lead to? What does this create other than simply “larger racks”? Of course, you see bigger and healthier deer all around (including does) that are able to maintain a steady population level through all the stresses that they may encounter (winter, drought, disease, etc.). What you don’t see is that only the older, most dominant and genetically superior (and healthiest) bucks are doing the breeding. This allows for natural selection to run its course. You not only have genetically superior bucks, but you have genetically superior does as well. In the presence of mature bucks, the testosterone levels of yearling bucks is suppressed, resulting in only the superior, mature bucks that win the right to breed to do the breeding. Does are generally bred over the span of 30 days rather than 90. Now you want to talk about a quality hunt. The sight of a mature buck charging to your grunt call, doe scents, and rattling antlers is just about the most rewarding experience anyone can achieve (even if you don’t shoot anything). (pg 5)

-Wherever fawn-rearing females are overly abundant, over-browsing and range forage deletion is likely, thereby excluding buck use of such habitat. Conversely, female groups may be prevented from becoming established in areas used by males, because predation or other factors reduce fawn-rearing success. (pg 10)

-Today, young bucks in Michigan probably have great difficulty finding suitable habitat during spring and summer, in an environment saturated with too many antlerless deer. As a consequence, many bucks are forced to occupy nutritionally poor areas, where they grow poorly, sport undersized antlers, and may even suffer greater than normal over-winter mortality. (pg 10)

-Most importantly, QDM encourages adequate adult doe harvest. Adult doe harvest accomplishes two things. It is by far the most effective method of holding deer populations to a sustainable level and it balances the buck to doe ratio to a more natural level. (pg 4)

-The other harvest management strategy that QDM promotes is a restriction in the harvest of young bucks (all of the yearlings and most or all of the 2 ½ year olds). This will create a buck age structure that consists of many more mature bucks in the population. This improved age structure, along with a balanced buck to doe ratio, is what we are talking about when you hear about a “natural or balanced” herd or population. It is what QDM advocates consider a “biologically sound” herd. (pg 5)

The Biology Behind QDM

By: Ted Wawrzyniak Biologist

By now, you have heard about the biological merits of QDM. You have heard about how QDM creates a biologically sound and balanced herd. So what exactly does that mean? It is important that you know the answer to this question so you can help to spread the word about QDM. To answer this question, let's look at the two harvest strategies involved in QDM. That is adequate doe harvest and restriction of the harvest of young bucks.

Most importantly, QDM encourages adequate adult doe harvest. Adult doe harvest accomplishes two things. It is by far the most effective method of holding deer populations to a sustainable level and it balances the buck to doe ratio to a more natural level. Adult does are the most productive segment of the deer herd. They are the most likely to successfully raise one, two, and even three young the next year. So by taking an adult doe, you take out 2-4 deer from next year's deer population. The harvest of a buck or a fawn only eliminates one deer. On the surface, this may alarm some people. You may anticipate a large decline in the population. Some have asked, "What happens if we have a bad winter?" This is exactly why we need to decrease the deer population. Before I explain what I mean, let me give you a couple definitions. The **carrying capacity** is the maximum level that a particular habitat can maintain. This capacity goes up and down with certain conditions. With recent mild winters, this capacity has increased steadily. In some of the more agricultural regions, this capacity has increased even more than other areas. I doubt that we are at that level because we would have to have virtually no hunting season to maintain this, however, we are likely very near that level. This is why you see the liberal doe harvest limits. Another level which is extremely important is the **sustained yield**. This is a level in which the maximum number of fawns are born and survive. This is a level in which deer are in the best condition, in which they have plenty of food, cover, and water. Their weights going into winter are the highest and they show an increased resistance to stresses. Now, I can go back to why we need to lower our deer population. Currently, with the state of the deer herd, a severe stress such as disease or a bad winter could decimate the population. With the population at this lower sustained yield, the deer will likely be more than adequately prepared to deal with any stress that it could face. Deer populations will remain much more stable and predictable. This makes deer populations much easier to manage. When populations are near carrying capacity stresses such as bad winters can bring the population to well below sustained yield levels, possibly requiring the DNR to severely restrict harvest or even cancel the hunting season all together for a year or more. The DNR tries to manage deer numbers closer to the levels of this sustained yield. I have not been able to have a discussion with a DNR Biologist regarding what level they try to maintain, but it is generally 50-60 percent of the carrying capacity. The DNR regularly evaluates what levels they would like to

maintain in each area of the state based on a particular sustained yield and sets harvest regulations based on that level. There is much more population dynamics that go into population levels being held near carrying capacity, but that goes beyond the scope of what I want to accomplish with this article. You can increase the sustained yield level in your area by planting food plots and managing your habitat to provide food and cover. These areas are covered in other parts of this and other newsletters.

A natural buck to doe ratio is about one buck for every doe (1:2). It was proposed by Guynn (1991) that deer herds should be managed so that the natural structure of populations is maintained. This goal ensures that the behavioral and biological mechanisms that shape deer populations are allowed to function. The density, sex ratio, and age structure should mimic a population regulated by natural predators and hunting by the Native Americans. Elder (1965) reported age composition of prehistoric Native American deer harvest based on mandibles from three sites in Missouri. Age compositions from the sites are remarkably similar and suggest that the Native Americans killed few fawns (8 percent or less), many deer survived to older ages (20 to 26 percent was 6 ½ years or older), and longevity of deer was great (some deer were 10 ½ years or older). Obviously, we are currently nowhere near this level with our harvest.

The other harvest management strategy that QDM promotes is a restriction in the harvest of young bucks (all of the yearlings and most or all of the 2 ½ year olds). This will create a buck age structure that consists of many more mature bucks in the population. This improved age structure, along with a balanced buck to doe ratio, is what we are talking about when you hear about a "natural or balanced" herd or population. It is what QDM advocates consider a "biologically sound" herd.

So what does this all lead to? What does this create other than simply "larger racks"? Of course, you see bigger and healthier deer all around (including does) that are able to maintain a steady population level through all the stresses that they may encounter (winter, drought, disease, etc.). What you don't see is that only the older, most dominant and genetically superior (and healthiest) bucks are doing the breeding. This allows for natural selection to run its course. You not only have genetically superior bucks, but you have genetically superior does as well. In the presence of mature bucks, the testosterone levels of yearling bucks is suppressed, resulting in only the superior, mature bucks that win the right to breed to do the breeding. Does are generally bred over the span of 30 days rather than 90. Now you want to talk about a quality hunt. The sight of a mature buck charging to your grunt call, doe scents, and rattling antlers is just about the most rewarding experience anyone can achieve (even if you don't shoot anything). Very few hunters in Minnesota even know what this feeling feels like, but when they do, they will never want to go back. These 30 days will be the most intense period of time you could imagine. This is in my opinion, a hunt of greater quality than anything that is possible right now. And I'm not even talking about shooting anything yet! At this point, it really doesn't matter. Remember, the sport is called hunting and not

shooting. I have had years where I did not shoot a deer and still had a great time while I was "hunting". Yes, it would be nice to have a nice buck on my wall, but the experience is what most QDM advocates are after. In fact, I would have even a greater experience shooting does if I know that I may get to see a buck every time I go out and blow on my grunt call. Maybe my wife would even quit yelling at me every time I came home smelling like doe pee, knowing that I actually have a chance of that stuff working.

The biggest complaint you hear from some people is that QDM is all about "large racks". This is a statement made only by the uneducated, because as you can see, QDM is a package deal. No, there really is no detrimental effect of having a buck to doe ratio of 1:7 (as an example). You can't give a simple explanation of why it is wrong to have a messed up buck age structure in which 90 percent of all bucks are yearlings or less. It is all tied in to a larger picture of which doe harvest is the cornerstone. If you don't believe that, than QDM is not for you. **If all you are trying to get out of QDM is "larger racks", please move to Texas and practice what you truly mean to practice – trophy management. QDM in Minnesota is going to be what it truly was meant to be. That is something that focuses on the big picture. Looking at the population as a whole and using sound biological principles to attain a hunting experience that is of the highest quality possible.** Yes, larger racks are a product of a more natural population. That is what gets all the attention because they are promoted on TV shows, magazines, and in hunting clubs. Unfortunately, you don't see too many pictures in magazines of the mature doe that someone shot during muzzleloader season. It is human nature to want to get something that is bigger than everyone else's. I will admit that I dream of shooting "The Big One". But how can you not get excited about that. We as deer hunters do not have to make any excuses about our passion for deer hunting and the quest for a trophy. But anyone practicing QDM knows the importance of doe harvest and how it all ties into the big picture. In addition to that, I haven't even mentioned that QDM advocates often use does to fill their freezers with delicious meat.

A Glut of Does Harms Bucks

By: John J. Ozoga

In white-tailed deer, the adult sexes live separately during much of the year, just as they do in mule deer, red deer, elk, moose, and many other ungulates. Scientists refer to this social and geographical separation as "sexual segregation" or "niche separation" of the sexes.

Related does live in close-knit matriarchal societies, composed of mothers, daughters, grandmothers, great-grandmothers, and so forth. Bucks, on the other hand, form fraternal or bachelor groups generally composed of unrelated males. In either case, social group size and the degree of social complexity varies depending upon many different factors that influence deer herd sex-age composition and density.

While the female whitetail might spend her entire life on a relatively small ancestral range, the male generally disperses to a new range. At some point in time, the young male must leave one societal unit to join another if he is to become a successful breeder.

Because adult bucks and does differ so much in their behavior, they can almost be treated as though they were different species. Researchers around the world still debate the adaptive advantages of the totally different lifestyles demonstrated by the whitetail sexes. Unfortunately, their seasonal differences in food, cover, and social requirements are seldom considered in deer management plans.

Given the potential significance, some deer researchers question whether current deer habitat and herd management strategies adequately serve both sexes. We are often bound to a system that overexploits the male segment of the population and under-harvest the females. The goal, it seems, is to produce an abundance of whitetails, regardless of their condition, to satisfy steadily increasing recreational demands on this species.

In many parts of the country, antlered bucks are currently being harvested so intensively that mature bucks and true buck groups are virtually nonexistent.

From the standpoint of whitetail social evolution, groups of yearling bucks, in the absence of older bucks, do not represent true fraternal groups. Groups of yearling deer may also include females, and tend to occur only during late spring and summer while does are rearing fawns. Thus, these groups of young deer differ greatly from exclusive, age-structured groups of older bucks.

In a natural population, only relatively few dominant bucks do most of the breeding.

A young male can only hope to become a dominant male by engaging in competition with other bucks over a long period. The achievement of dominant status by young males requires outliving older, stronger males and dominating males of similar age. It is not enough to simply maintain a rank. To succeed, the young male must continually strive to move up in dominance. This requires that he associate not only with animals of lower rank, but also with those of higher rank.

In an age-structured male society, a high rank is not easily attained, it requires experience and the learning of competitive skills. Success, as in any contest of strength, skill, and endurance, comes from long and diligent training. A young male choosing not to join all-male groups would not be able to obtain the necessary skills to compete successfully.

Considering that the whitetail buck's chances of breeding are largely determined by his rank in the male dominance hierarchy, the young buck has little choice but to associate with other males. Although he is tightly linked to the mother-young system early in life, he must eventually break those bonds. When sexually mature, the buck must seek out and interact with older males, achieve male group membership, and rise in dominance rank. If he does not, but instead remains with female relatives, it is my opinion that he would become a "psychological castrate," never achieving respected breeder-status.

Even casual observers may note that, as with any behavioral trait, the whitetail's social organization is an adaptation. It evolved in response to numerous environmental stresses, including predators, diseases, climate, habitat conditions, and hunting by Native Americans. And, as with any adaptation, the whitetail's social organization is genetically linked, inherited, and essential for the species' healthful existence—it promotes social order, genetic selection and physical fitness, and improves the prospects for survival.

Since the whitetail sexes differ in many aspects of physiology, behavior, and anatomy, it is likely that they evolved differently. For example, bucks and does differ in size, shape, growth rate, metabolic rate, life span, food and cover requirements, and in many aspects of physiology and biochemistry.

Based upon intensive behavioral investigations conducted in Southern Michigan's George Reserve, investigator Dale McCullough concluded that, due to sex differences in use of space, food, and cover, whitetail bucks and does do not compete equally for the necessities of life on a year-round basis.

Therefore, if bucks and does evolved differently, then they must also respond differently to environmental change. As a result, habitat management practices that benefit does may not necessarily benefit bucks equally, or may even be detrimental to bucks.

Also, harvest management strategies that inflict unnatural patterns of mortality (such as buck-only harvesting) and create deer herds with abnormal sex and age composition could impact the welfare of one sex, either favorably or otherwise, more than the other.

Many hypotheses have been advanced to explain the evolution of sex segregation among ungulates. However, two Oregon researchers, Martin Main and Bruce Coblenz, propose that females select habitat that is best suited for rearing offspring. Normally, that means diversified food and cover arrangements with ample hiding cover for both mother and young, as a predator defense, during the critical stage of early fawn-rearing.

By comparison, when available, males tend to select areas where nutrition is superb, which allows for maximal body growth necessary for the attainment of high dominance rank and improved breeding success.

Generally speaking, both male and female whitetails in northern latitudes subsist upon relatively poor quality forage during winter and leave their winter ranges in depleted, poor physical condition.

Forage and environmental conditions normally become much better in spring and summer, allowing for fairly rapid replenishing of energy reserves. Ungulates from northern latitudes have evolved to give birth during this period, when conditions are most favorable for rearing young. This is when the reproductive patterns of the adult sexes differ the most and they show the greatest niche separation.

The Oregon researchers emphasize that body size, physical strength, and general body condition influence a male's mating success. Therefore, the "replenishment of energy reserves should coincide with major growing seasons, and optimization of forage resources by males should be most evident during these periods as they prepare for the rut. Optimal foraging by males may require avoidance of heavily grazed areas or adoption of foraging patterns that exploit temporal resources of high quality. The importance of maximizing body condition for males apparently exceeds even increased risk of predation."

When a deer population is socially balanced, my observations indicate that adult bucks intensively scent mark their favored summer habitat as soon as they return to it in spring, probably as a means of reclaiming range that had been vacated during winter. This marking, which is done primarily on overhead branches, serves to intimidate other deer, including pregnant females that require solitude for fawn rearing. As a result, buck scent marking helps to segregate the adult sexes and distribute the herd more evenly during the nonbreeding period when does are rearing fawns and bucks are growing antlers.

In McCullough's words

, "Resource partitioning between the sexes in white-tailed deer adds a new dimension to the role of social behavior as it relates the animal to its environment." Indeed, if bucks differ from does in their use of space, food, and cover resources, on a seasonal basis, then deer herd and habitat management considerations take on an entirely new level of complexity.

McCullough suggests that this issue should be carefully considered especially when it comes to determining deer harvest management strategies. As he points out, "unbalancing populations toward females intuitively would be expected to increase productivity, but in practice seldom does in moderate- to high-density populations."

Clearly, poor growth rates among young deer and reproductive failure among adult does, when associated with food competition and malnutrition, invariably is the result of too many female deer, not because of too many bucks.

Martin Main was probably correct in criticizing traditional deer management practices which promote and expand female groups—especially predator control efforts and bucks-only harvesting—run counter to how the white-tailed deer's social system evolved.

Wherever fawn-rearing females are overly abundant, over-browsing and range forage deletion is likely, thereby excluding buck use of such habitat. Conversely, female groups may be prevented from becoming established in areas used by males, because predation or other factors reduce fawn-rearing success.

In other words, when deer density is high, whitetail bucks often occupy certain habitats strictly by "default." They browse depleted areas where no does live or where does live in very low numbers.

Today, young bucks in Michigan probably have great difficulty finding suitable habitat during spring and summer, in an environment saturated with too many antlerless deer. As a consequence, many bucks are forced to occupy nutritionally poor areas, where they grow poorly, sport undersized antlers, and may even suffer greater than normal over-winter mortality.

John Ozoga is a former Wildlife Research Biologist for the Michigan Department of Natural Resources where he spent more than 30 years conducting deer research at Upper Michigan's Cusino Wildlife Research Station. He now devotes much of his time to consulting and popular writing and is a panel member for QDMA's Whitetail Wisdom column.

The Importance of Harvesting Antlerless Deer

By Kip Adams, Quality Deer Management Association

A deer management program's success can be measured by many factors, but one of the most important is whether the deer herd is in balance with the carrying capacity of the habitat. If browsing by deer limits forest regeneration and determines what plant species will grow, then the deer herd is most likely above the carrying capacity of the habitat and should be reduced. This article focuses on antlerless deer management and discusses four reasons for harvesting antlerless deer.

Reasons to harvest antlerless deer:

To control population growth and density

We need to shoot does to control population growth. Does are the reproductive segment of the deer herd, and the only way to maintain stability within or reduce a deer herd is to harvest female deer. We have removed the major predators of deer (e.g., wolves, mountain lions) from most of the whitetail's range so we, the hunter, must assume that role.

To balance the sex ratio

We want adult sex ratios to be as close to 1:1 as possible. In wild populations it is extremely difficult (if not impossible) to get a 1:1 ratio but well managed herds can have <2 adult does per adult buck. Fawns are born at a rate of nearly 1:1 (it's actually slightly more bucks than does) and we want adults to be 1:1, so we need to harvest about the same number of does as bucks. If we shoot more bucks than does, the adult sex ratio becomes skewed and skewed ratios lead to poor breeding ecology within the deer herd and lower quality hunting experiences for sportsmen.

To make room for yearling bucks

One goal of quality deer management is to improve the age structure of the buck segment of a population. A herd should have bucks in all age classes, not just the younger classes. Not harvesting yearling bucks is the best way to increase the number of bucks in a population. In areas that have either the right number or too many deer for the habitat, if you save yearling bucks (and you should) then you need to shoot an additional number of does to compensate for the additional number of bucks on the area.

To improve reproductive success and recruitment

You want the deer herd to be as healthy as possible because does at their reproductive maximum produce the most fawns. Approximately every other fawn is a buck so you can put the most bucks on a property by having a healthy deer herd.

The old adage, "If you shoot a doe you're killing next year's buck" is NOT true in any deer herd that is above the carrying capacity of the habitat (as defined in the first paragraph of this article).

The point is simple, if you don't shoot enough does, the deer herd will grow above the habitat's carrying capacity - that is bad for the habitat. Deer herds above carrying capacity don't get enough high quality nutrition and their body condition suffers - that is bad for the deer herd. When body condition suffers, does produce fewer fawns and bucks produce smaller antlers - and that is bad for hunters!

Food Plots (March 2004)

By: Kip Adams

Year around nutrition is important for whitetails as they experience two stress periods annually. Winter stress is obvious during periods of snow and cold when little food is available, but deer also experience stress during summer as they require vast amounts of nutrition for body maintenance and growth, antler growth and lactation. If the deer herd is in balance with the habitat's carrying capacity, native vegetation can provide adequate nutrition to feed deer during the year. However, even under balanced conditions, deer experience an energy deficit during winter as native browse averages a mere 4-8% protein. Since many regions have deer herds above the habitat's carrying capacity it is easy to see how native vegetation can use some help.

Food plots are the perfect partner. Food plots are agricultural-type crops planted for wildlife and are intended to supplement the nutrition provided by native vegetation. They assist by providing additional food that often has higher nutritional value. Food plots reduce browsing pressure on native vegetation and allow for increased forest regeneration. More importantly, food plots can have a huge impact during winter when native foods are scarce.

Food plots can be divided into nutritional and hunting plots. Nutritional plots provide additional nutrition to the deer herd while hunting plots provide a place to harvest deer. Nutritional plots are typically larger (1-5 acres) than hunting plots (1/4 -1 acre) and contain cool-season annuals (brassicas) and perennials (clovers) as well as warm-season annuals (corn and beans). Hunting plots may contain cool-season annuals or perennials or warm-season annuals planted for forage.

A good food plot program provides high-quality year around nutrition for deer. Research indicates 1% of a property planted in food plots can have a measurable impact on the deer herd's weights, antler parameters and reproductive success. I suggest planting 3-5% of an area. These percentages provide additional forage and guard against poor site or weather conditions. Plant 60-70% of the food plot acreage in cool-season perennials, 20% in cool-season annuals, and 10-20% in warm-season annuals.

Perennials are plant species that live for more than one year and include white and red clover, alfalfa, birdsfoot trefoil and chicory. Clovers are the number one cool-season perennial and chicory and trefoil are valuable because of their drought tolerance. Perennials are more economical and productive than annuals in the long term and require periodic mowing, fertilization and weed control. Annuals are easier to establish and produce more biomass than perennials during the first few months

but they need to be replanted every season. Brassicas are cool-season annuals that include turnips, rape and canola. Brassicas provide abundant (up to 10 tons of forage per acre) highly digestible food containing up to 38% protein. Corn, peas, Lablab, millet and soybeans are the more popular warm-season annuals. Corn is especially valuable because it is used for both food and cover.

Plot location is variable and often limited to existing habitat and landscape features. Food plots can be planted in agricultural and abandoned fields, along logging or forest roads, in log landings and nearly anywhere else sunlight reaches open ground. In wooded areas small plots can be created with a chainsaw and backpack sprayer while larger plots may require a bulldozer or similar equipment. Ideally, food plots should be distributed evenly throughout the property, and long irregularly-shaped plots are preferred over round or square plots because they maximize the amount of edge. Edge is the transitional zone between habitat types. It often contains early successional plant species and is an important component of deer habitat. Large fields can be divided into smaller units with areas closest to cover used for cool season plots.

Food plots are good for deer, hunters and other wildlife. Prior to planting always conduct a soil test and lime accordingly. Nutritional plots help ensure deer get adequate nutrition and hunting plots facilitate doe harvests to balance deer herds with existing habitat conditions. Food plots are also great places to find shed antlers in the spring.

Kip's Korner is written by Kip Adams, a Certified Wildlife Biologist and Northern Director of Education and Outreach for the Quality Deer Management Association (QDMA). The QDMA is an international nonprofit wildlife conservation organization dedicated to ethical hunting, sound deer management and preservation of the deer-hunting heritage. The QDMA can be reached at 1-800-209-DEER 1-800-209-DEER or www.QDMA.com.

More Info

These are just some of the articles we feel are important to begin education on the benefits of QDM. Please see the QDMA website at www.qdma.com and click on the articles link for more info.