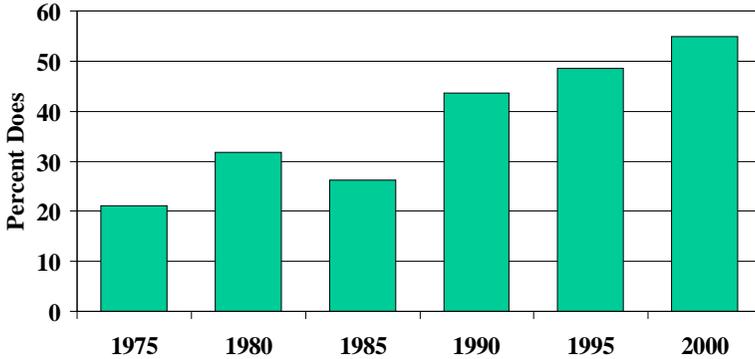


**DEER HERD MANAGEMENT
FOR GEORGIA HUNTERS**

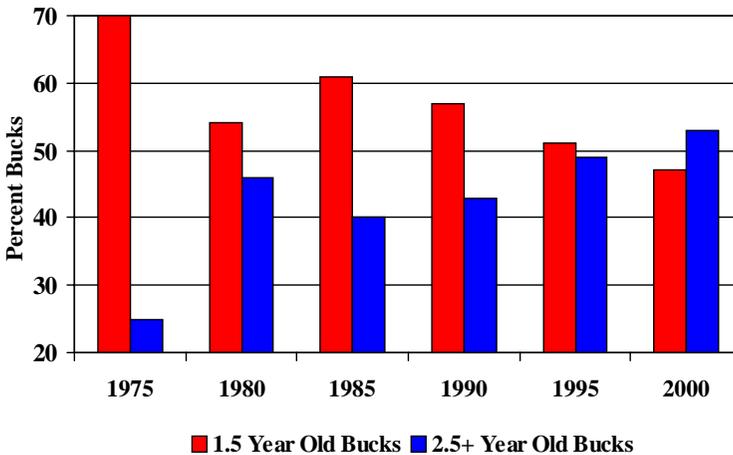
Harvest & Habitat Guidelines

PRODUCING A QUALITY DEER HERD IN GEORGIA

Doe Harvest Has Steadily Increased for 25 Years



Georgia Hunters Are Taking More Quality Bucks



As a result of Georgia's increasing doe days and bag limits, the harvest of does has steadily increased over the last 25 years. At the same time the harvest of quality bucks has increased while the harvest of younger bucks has decreased. Through DNR's proactive deer management program, Georgia hunters are leading the nation in doe harvest. Together, DNR and Georgia hunters, are producing a quality deer herd for present and future generations of Georgians to enjoy.

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Deer Herd Management for Georgia Hunters

Georgia Department of Natural Resources
Wildlife Resources Division (WRD)
Game Management Section
2003

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PREFACE

Wildlife biologists of the Georgia Wildlife Resources Division Deer Committee prepared this booklet. This is the third revision and reprinting of this publication since 1988. It is intended to serve as a source of general information for those with a casual interest in white-tailed deer but not as a detailed guide for land managers. The “simplified” approach to deer harvest management used in this booklet is taken from a combination of deer population models. The committee hopes this booklet will ultimately benefit the valuable deer resource in Georgia and help to insure it’s proper management for the interest and enjoyment of generations to come.

ACKNOWLEDGEMENTS

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Introduction

Every deer hunter wants to have a high population of deer with a large number of quality bucks. Unfortunately, even with the best management, it is difficult to have both large numbers of deer and a lot of older, large-antlered bucks. However, there are some techniques and management approaches which allow for a very satisfactory deer management compromise. Wildlife biologists agree that there are two basic ways for hunters to manage their deer populations: 1). harvest management; 2). habitat management. This brochure concentrates on techniques for hunters to use for harvest management, and briefly discusses habitat management. In some areas of Georgia, deer harvest management is lacking because disproportionate numbers of bucks and does are harvested each year.

This skewed harvest can lead to temporarily high deer populations in poor condition, out-of-balance sex ratios with too many does, poor antler development and few quality bucks. Conversely, hunt clubs that place total emphasis on quality buck management sometimes fail to allow enough harvest to maintain hunter satisfaction within the club. The management advice in this booklet is meant to assist Georgia hunters in recognizing harvest strategies and implementing these strategies to provide excellent habitat, deer herds and hunting. Georgia's liberal bag limits and abundance of either sex hunting days are specifically designed to allow deer hunters flexibility to manage deer populations to reach virtually any objective they desire for the deer herd.

Additional management information and advice is available from wildlife biologists of the Wildlife Resources Division. First, a little information on basic deer biology is in order.



Basic Deer Biology

Scientific studies of white-tailed deer in recent years have provided much knowledge of deer biology and behavior which can be applied to hunting leases, clubs, or farms. For example, deer home range sizes in Georgia vary from 150 acres to more than 1,200 acres with does having smaller ranges than bucks. Smaller ranges are found in higher deer populations in better deer habitat such as that found in the Georgia Piedmont and Upper Coastal Plain (see map). Differences in deer movements and range sizes can greatly influence hunting leases.

Although most hunters think in terms of bucks and good antler development, it is the doe segment of the herd which determines most of the differences in deer populations. For example, depending on the food supply and the total deer population in a given area, does can produce twins, singles, or not bear any fawns at all. After the fall hunting season, the number of fawns in the harvest divided by the number of yearling (1 1/2 year old) and adult does in the harvest yields the recruitment rate. In Georgia, recruitment rates can vary from 0.3 to 1.4 fawns per doe. The difference in the rate is extremely important because total deer deaths must match total recruitment each year for the population to remain stable. If recruitment exceeds the total death rate from hunting and other causes in any particular year, then the deer population increases. This increased growth occurs only up to a point. Eventually, the pop-

ulation reaches a size where it exceeds the available food supply ("carrying capacity" of the land) and this results in lower recruitment, poor antler development, lower body weights and eventually a lower population as the remaining food supply is damaged.

What about factors affecting antlers? Buck antler development is controlled by age, nutrition, and genetics. Genetics does not appear to be an important factor limiting antler development in Georgia. This means that stocking to improve the strain of deer is not a viable or feasible solution to correct antler development problems. For most deer herds in Georgia, age is the single most limiting factor for antler development. Under heavy hunting pressure, bucks simply do not live long enough to produce large antlers. In parts of the Lower Coastal Plain and Mountains, bucks live to much older ages but nutrition levels are often poor and limit antler development in these regions. Likewise, poor nutrition also occurs in spots in the Piedmont when deer herds get so large that their food supply is reduced in quality or quantity. Again, antler growth suffers.

The deer herd that you hunt is the result of a complex interaction between food supply, population size, reproduction, mortality factors, movements, weather, and past history. However, there are methods for controlling deer harvest to reach the desired objective for the deer herd. The first step is to establish your objective.



Although most hunters think in terms of bucks and good antler development, it is the doe segment of the herd which determines most of the differences in deer populations.

Establish Herd Objectives

To obtain the most enjoyment from hunting, you and your hunting partners should decide upon one of four objectives for the deer herd and then take the necessary steps (presented later in this publication) to reach your objective. A list of objectives, as well as their advantages and disadvantages, are presented below.

1. Maximum Population Objective - large deer population.

Advantages:

- a) Large number of deer seen while hunting.
- b) Relatively high deer harvest.

Disadvantages:

- a) Poor antler development and body size;
- b) Poor reproduction;
- c) Sex ratio often highly skewed toward does;
- d) Severe habitat damage in some years, with permanent damage possible.
- e) Depressed, erratic rutting season.

2. Maximum Harvest Objective - highest long-term deer harvest per unit area.

Advantages:

- a) Large number of deer harvested each year;
- b) Young bucks in good condition with good antler development;
- c) No damage to long-term food supply or carrying capacity of the land.

Disadvantages:

- a) Fewer deer seen (than option 1) while hunting;
- b) Few trophy bucks harvested because most bucks are taken at very young age.

3. Quality Deer Objective - very similar to option 2 except that hunting pressure is reduced on the buck portion of the herd to produce some older animals for the next year. Large tracts (over 1,000 acres) are usually required for successful management.**Advantages:**

- a) Relatively large number of does in the harvest;
- b) Bucks have good antler development and body weight;
- c) Behavior of young bucks is observed and enjoyed.

Disadvantages:

- a) Difficult to define “quality” or “trophy” as it varies by area of the state and by individual clubs and members;
- b) Some nice young bucks must be passed up, or length of season voluntarily shortened, or buck bag limit voluntarily reduced by hunters;
- c) Much of harvest will be comprised of does;
- d) Some young bucks will be lost to hunters on surrounding properties and to other sources of mortality.

**4. Trophy Buck Objective - production of trophy antlers.****Advantages:**

- a) Antler development and buck age structures are maximized.
- b) Reproductive capability of does is maximized.

Disadvantages:

- a) Very few deer seen while hunting;
- b) Total deer harvest is low;
- c) Many bucks must be passed up;
- d) More bucks die of natural causes, road kill, or surrounding hunting pressure;
- e) Accurate field judging of antlers is necessary;

- f) Very large acreages (over 3,000 acres) are required to be effective;
- g) Strict, tough penalties for violating the rules must be imposed to make it work.

Once an option is chosen, a harvest strategy must be designed to move your herd toward the objective. Three approaches are possible:

- 1) Stabilize the herd by using a balanced either-sex harvest;**
- 2) Increase herd size by limiting doe harvest;**
- 3) Decrease herd size by increasing the doe harvest.**

How do you know which approach is necessary to reach your objective for the deer herd? First of all, you must know the current status of the herd relating to certain key condition and population indices. Even though there are several rules of thumb which may get you started, this status can best be determined by **accurate record collection and interpretation of these records by a trained wildlife biologist**

Keep Accurate Records

Records should be kept on every deer harvested on the property (Figure 1). Basic record keeping begins with the total number of bucks and does taken from the property each year.

Secondly, and just as important, are the ages of all animals in the harvest. Never guess at deer ages! One side of all lower jaws should be pulled, tagged and saved for inspection by a biologist. Wildlife Resources Division biologists can provide assistance for aging jaw-bones to landowners and hunting clubs upon request. If this is not possible, then club members should become proficient in aging 3 age classes: fawns (6 months of age), yearlings (1 1/2 years of age), and adults (2 1/2 years of age and older) (see page 32 and back cover).

Do not underestimate the value of aging all the animals in the deer kill especially yearlings. This is the single most important piece of information obtainable for your deer herd. The meaning of all other measurements of the deer herd, such as weights and antler measurements, depends upon accurate aging.

After aging, antler measurements are next in order of importance. Be consistent and thorough in your data collection. All measurements should be taken from the right antler unless it is deformed or broken. **Antler diameter** at the widest point (one inch above the burr) should be measured in millimeters with an inexpensive set of calipers, **length of main beam** from base to tip

along the back of the curvature of the beam is measured with a tape in inches, **total number of points** (must be at least one inch in length), and **outside spread** is recorded (Figure 1). In addition to antler measurements, **field dressed weights** can provide very important trend data to monitor your deer herd and compare your records with those from other deer populations. Live weights can be used but are more difficult to compare with other deer herds. On clubs that do not restrict their buck harvest, data from yearling bucks is especially valuable since these animals reflect the condition of the entire population if the measurements are taken correctly.

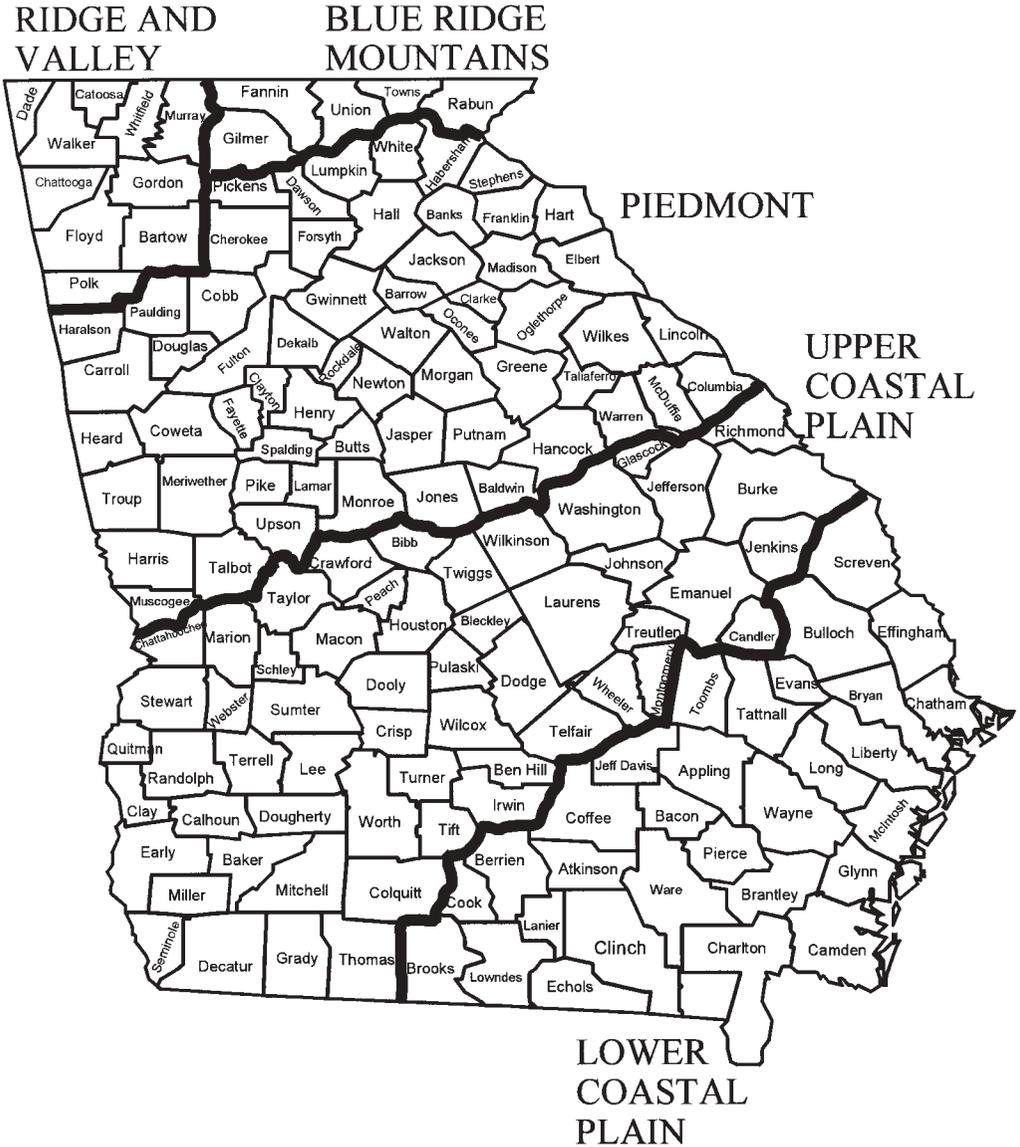
Comparison of Records

If you have kept accurate age, antler and weight records, then these can be compared with the charts taken from many years of data on many Georgia Wildlife Management Areas (WMAs) in all Physiographic Regions (Figure 2). Bar graphs show the average and range of condition indicators for yearling buck antler beam measurements and weights found on Georgia WMAs. If your club harvests yearlings (1 1/2 year old bucks) without regard to antler configuration and if you have at least 5 yearling bucks in your harvest, compare the averages of these versus those shown for Georgia

WMAs and see if yours fit in the best, average, or worst categories. If you have a “selective” harvest (i.e. passing up spikes or any other antler selection), then comparisons with WMA charts are not valid. You will need to use older bucks or yearling does and rely on trend data. If you accumulate 2 or more years of accurate records on your own area, then comparisons by age class from one year to the next become valuable in understanding your deer herd. For example, a 3-year downward trend in average antler main beam lengths of 1 1/2 year old bucks often indicates a growing population which is short of food and is reducing the long term carrying capacity of the area. This strongly indicates a need for increased doe harvest the following year. Obviously, the amount and quality of information you have collected from your deer herd will now become extremely important in determining how your deer herd compares with these ranges and what you can do to influence the future direction of your herd. Even with very little information, some basic rules of thumb can be applied to determine your present herd status and future management direction.

Figure 2.

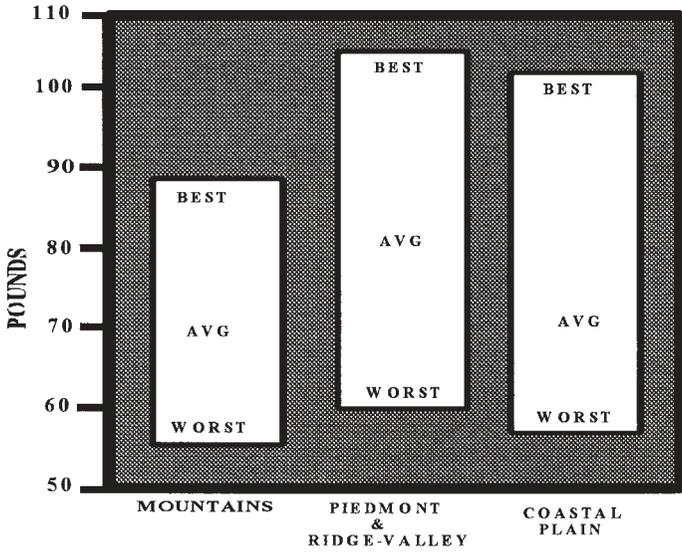
GEORGIA PHYSIOGRAPHIC REGIONS



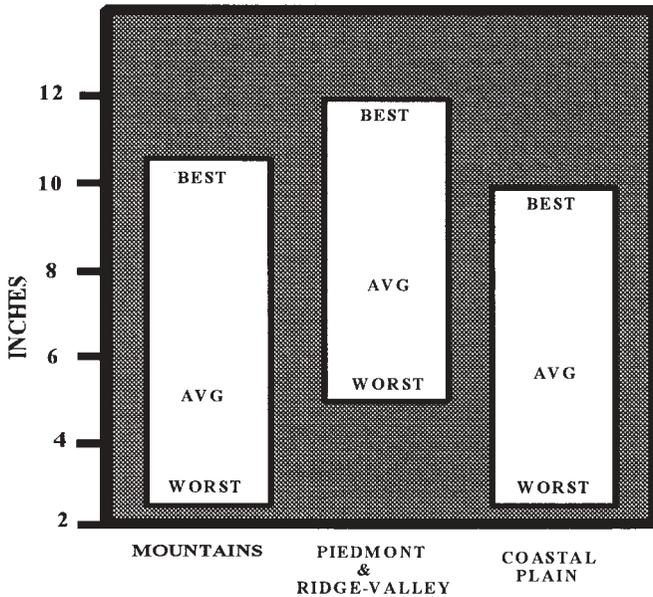


Wherever possible, it is far better for the deer hunter to manage deer population numbers than the automobile, the sharpshooter, electric fences or birth control.

**YEARLING BUCK FIELD DRESSED WEIGHT
FOR WILDLIFE MANAGEMENT AREAS IN GEORGIA**



**YEARLING BUCK ANTLER BEAM LENGTH
FOR WILDLIFE MANAGEMENT AREAS IN GEORGIA**



Harvest Strategies - Some rules of thumb

One good rule of thumb is that it is much easier to manage the deer population and reach your harvest objectives on larger land areas. For example, a club leasing 2,500 acres has a greater chance for successful management and achieving objectives than a club which leases only 500 acres. The reason, of course, is that deer do not recognize ownership boundaries and often have home ranges which span across two or more adjoining clubs or leases. Other clubs harvest strategy may be different from yours. For example, while your club may be managing for quality deer by restricting antlered buck harvest the adjoining club may be killing too many bucks but not enough does. Some of these bucks will likely be bucks you have passed! One obvious solution to this problem is for two or more adjoining clubs to share information and cooperate on their deer management objectives. The combined acreage of cooperating adjacent clubs can be much more productive and successfully managed.

Harvest strategies will differ depending on your objective and the harvest approach required (stabilize, increase, or decrease) to meet your objective. Also, the size and composition of harvest are linked to the physiographic regions of Georgia and the quality of the habitat within your region (see map). The Piedmont, Ridge and Valley, and Upper Coastal Plain Physiographic Regions are the most productive deer regions in Georgia and contain the great majority of deer leases. The Mountains and Lower Coastal Plain Physiographic Regions are less productive for deer and contain fewer deer leases. To put deer harvests in perspective, a harvest of 5 deer per square mile (640 acres) is good in the Mountains and Lower Coastal Plain and 15 deer per square mile is good in the other regions. Harvests exceeding 25 deer per square mile have commonly occurred on small land areas in the Piedmont.

After you have collected the necessary data from your harvest and determined your management strategy for the herd (maximum population, maximum harvest, quality management or trophy management), you can begin to work toward that objective. Use your data to determine the current herd status. You will need to know the total antlered buck harvest, total number of yearling (1 1/2 year old) bucks and the average beam length of yearling bucks.

TABLE 1-DEER HARVEST MANAGEMENT OPTIONS AND STRATEGIES NECESSARY TO CHANGE OPTIONS.

A	B	C	D	E	F	G	H	I	J
RIGHT ANTLER MAIN BEAM (INCHES)	% 1.5 YR. BUCKS IN ANTLERED BUCK HARVEST	BUCK HARVEST PER SQ.MI. (6-40 AC.)	PRESENT DEER HERD STATUS	POPULATION LEVEL VS. CARRYING CAPACITY	LAST YEARS BUCK HARVEST from your data	DOE HARVEST FACTOR	DOE HARVEST GOAL MULTIPLY F*G TO FIND THE # OF DOES TO KILL TO REACH YOUR DESIRED MANAGEMENT STRATEGY	DESIRED MANAGEMENT STRATEGY	POPULATION TREND
<7.0	>30%	1-20	1)MAXIMUM POPULATION	HIGHEST	_____	0.6	_____	1)MAXIMUM POPULATION 2)MAXIMUM HARVEST	NO INCREASE STABILIZE DECREASE
>7.0	>50%	1-20	2)MAXIMUM HARVEST	MODERATE	_____	0.3	_____	1)MAXIMUM POPULATION 2)MAXIMUM HARVEST 3)QUALITY DEER	INCREASE STABILIZE DECREASE
>8.0	<50%	1-5	3)QUALITY DEER	LOWER	_____	0.5 2.0 4.0	_____	2)MAXIMUM HARVEST 3)QUALITY DEER 4)TROPHY BUCK	INCREASE STABILIZE DECREASE
>10.0	<30%	1-5	4)TROPHY BUCK	LOWEST	_____	0.8 3.0	_____	3)QUALITY DEER 4)TROPHY BUCK	INCREASE STABILIZE
					_____	_____	_____	_____	NO DECREASE

TABLE 1A. EXAMPLE USING BIG BUCK CLUB HARVEST DATA (SEE TEXT PAGE 18)

A	B	C	D	E	F	G	H	I	J
RIGHT ANTLER MAIN BEAM (INCHES)	% 1.5 YR. BUCKS IN ANTLERED BUCK HARVEST	BUCK HARVEST PER SQ.MI. (640 AC.)	PRESENT DEER HERD STATUS	POPULATION LEVEL VS. CARRYING CAPACITY	LAST YEARS BUCK HARVEST from your data	DOE HARVEST FACTOR	DOE HARVEST GOAL MULTIPLY F*G TO FIND THE # OF DOES TO KILL TO REACH YOUR DESIRED MANAGEMENT STRATEGY	DESIRED MANAGEMENT STRATEGY	POPULATION TREND
<7.0	>30%	1 - 20	1).MAXIMUM POPULATION	HIGHEST	_____	_____	_____	_____	NO INCREASE STABILIZE
>7.0	>50%	1 - 20	2).MAXIMUM HARVEST	MODERATE	_____	0.6	_____	1).MAXIMUM POPULATION 2).MAXIMUM HARVEST	DECREASE
7.8	0.58	11	(BIG BUCK CLUB FITS HERE)	_____	12	1.2	12*1.2=14	3).QUALITY BUCK	DECREASE
>8.0	<50%	1 - 5	3).QUALITY DEER	LOWER	_____	0.5	_____	2).MAXIMUM HARVEST 3).QUALITY DEER 4).TROPHY BUCK	INCREASE STABILIZE DECREASE
>10.0	<30%	1 - 5	4).TROPHY BUCK	LOWEST	_____	0.8	_____	3).QUALITY DEER 4).TROPHY BUCK	INCREASE STABILIZE NO DECREASE
						_____	_____	_____	

1. Determine the **average beam length** for yearling bucks by adding the beam lengths of all yearling bucks and divide this total by the number of yearling bucks to get the average.

2. Determine the **% yearling bucks** in the harvest by dividing the number of yearling bucks by the total number of antlered bucks.

3. Determine the total **buck harvest per square mile** (640 acres) by multiplying your harvest times 640 then dividing by the acreage in your club.

Compare these values to columns A,B, and C in Table I to determine the present status of your deer herd (column D). Column E shows the population level relative to carrying capacity of the habitat. The next step is to fill in the number of bucks you harvested last season into column F in the same row with your current herd status. Finally, determine your doe harvest goal for next season by multiplying your total buck harvest by the appropriate factor in column G to reach your deer management strategy (column I). Following this recommendation for doe harvest is the key to the success of your program. It is more important than passing up bucks.

Column J will show you the expected trend in the deer population if you meet your doe harvest goal. It may take two or more years to see measurable changes in the deer herd. A commitment to stick with a management program for several years is necessary to see measurable results.

Let's use the 700 acre Big Buck Club for an example (Table 1A.). A summary of their kill sheet shows 12 antlered bucks and 7 does killed. Yearling buck beam lengths averaged 7.8 inches and there were 58% yearlings (7/12) in the kill. Buck harvest per square mile was 11 ($12 \times 640 / 700$). The club currently fits in Maximum Harvest but their goal is Quality Buck. To get there multiply 12×1.2 (Doe Harvest factor) to yield a Doe Harvest Goal of 14 and decrease the population.

Consequently, the Big Buck Club will need to double the doe harvest to 14 does and reduce the buck harvest to about 6 bucks. Additionally, they need to reduce the percent of yearling bucks in the harvest. As you can see from this example, the key to the population size, total number of bucks and antler quality is both the number of bucks and especially the number of does in the harvest. The necessary number of does to harvest is presented as a percentage of last year's antlered buck harvest.

What about button bucks? Despite your club's best possible intentions to pass up button bucks, there will undoubtedly be several taken. Don't worry too much about this. A modest harvest of button bucks will not affect the success of your program. However, for purposes of simplifying our calculations, don't include button bucks in any of the harvest totals or formulas used in the table.

Given a choice of objectives, most hunting groups will probably choose the MAXIMUM HARVEST or QUALITY DEER harvest options. These are actually very similar strategies, except for the intensity of adult buck harvest.

However, if there is a lack of information about their deer herds, many clubs almost inevitably seem to manage conservatively for MAXIMUM POPULATION by harvesting too many antlered bucks and too few does every year.

Over the span of a couple of years, this causes antler declines and habitat deterioration due to overpopulation caused by poor food supplies and decreased carrying capacity. It also creates a skewed sex ratio favoring does.

When accurate records are lacking, a good rule of thumb to stabilize a **heavily hunted population** (i.e. high buck harvest) is to harvest does at the rate of 0.6 that of the antlered bucks. The reasons for this doe factor are: 1) does are usually born into the population in slightly lower numbers than bucks; and 2) does often die from causes other than legal hunting at a higher rate than bucks. This percentage will stabilize the population in most cases where there are no buck harvest restrictions. If any restrictions are placed on the antlered buck harvest (such as a season bag limit of one per member, or antler restriction of 4 points on one side, or any reduced hunting pressure on bucks in an effort to maintain an older age structure) then this stabilization factor often exceeds 1.0 (does per antlered buck). These percentages are reflected

in Table 1, options 2 or 3. Many clubs statewide are currently harvesting less than 50% does per antlered buck each year even though the statewide average has been running near 50% for several years. Low doe harvest rates on some clubs combined with excessively high harvest of bucks each year, causes a steadily increasing population in which body and antler conditions decline, the population sex ratio skews greatly toward does, and fawn production per doe declines.

If your club has decided to select QUALITY DEER MANAGEMENT (QDM) or TROPHY BUCK MANAGEMENT strategies, then you must limit the percent of yearlings in the antlered buck harvest to less than 50%. Success in these strategies is determined in part by the number of bucks harvested during the season. Typically, you can not harvest more than 5 bucks per square mile in QDM or TROPHY BUCK MANAGEMENT. This will often require a reduction from your current buck harvest. Although this reduction will not be easy, there are several ways to accomplish it. One is the season limit rule where all harvest of antlered bucks on the club is stopped as soon as the season limit (6 in our example) is reached no matter when this occurs during the season. Another approach is to reduce the antlered bag limit per member from 2 to 1. Of course, one possible method of reducing buck harvest is selection based on antler size. A selective buck harvest system can be installed

to successfully implement the QUALITY DEER or TROPHY BUCK options. There are many variations of this basic selective harvest theme that can be tailored to the club and the habitat. Two methods which are already being implemented in several Georgia counties are to harvest 1) bucks with 4 points on one side or better; or 2) bucks with a 15-inch or greater outside spread. All smaller bucks are passed up. (Note: a 15-inch spread is the approximate width between the tips of bucks' ears when they are extended outward in alert position). This restriction criteria is only appropriate for the best habitat and consistent "big deer" areas. We recommend against a 16-inch spread restriction because in many parts of Georgia even 4 1/2 year old or older bucks will not exceed this spread.

A selective harvest system must be carefully tailored to the condition of the deer herd.

Shooting all spike bucks in parts of the Mountains and Coastal Plain, for example, would be counter-productive since virtually all of the 1 1/2 year-old bucks are spikes in these areas. On the other extreme, in portions of the Piedmont and Upper Coastal Plain, there are many herds which have less than 50% of the yearling bucks with spikes. Some clubs take some spikes under these conditions in an attempt to influence the genetic quality of the deer herd. Whether it really does any good or not probably varies on every piece of

property and is still a subject for debate. Given older age, spikes will usually grow to reasonable quality bucks. It is unlikely that selectively harvesting spikes will improve the quality of the herd. Wildlife biologists can provide valuable information and advice on selective harvests tailored to your local area and the condition of your deer herd.



Shooting spikes to improve genetic quality of your deer herd is a questionable practice which may not produce any positive results.

Quality Deer Management (QDM)

In the 1960's, deer management in Georgia consisted primarily of restoration. As deer numbers gradually increased into viable populations across the state, hunters harvested surplus animals (frequently bucks only) and began the initial phase of population control in some areas. Over the years, this management was fine tuned as the Wildlife Resources Division utilized bag limits, season length, and either sex hunting days to manage the deer herd. Hunters and their harvest continue to be the primary tool for deer herd management.

A slightly different approach to this traditional form of deer management is Quality Deer Management (QDM). In QDM, additional efforts are made to manage the age structure and sex ratio to improve herd and hunt quality. This management is accomplished by protecting young bucks while harvesting enough does to maintain the population below the carrying capacity of the habitat. As these protected bucks advance into older age classes, they produce a more natural age structure and opportunities for hunters to hunt for older aged bucks. As with any other management strategy, there are both advantages and disadvantages to consider before you or your club decides to implement QDM.

Advantages of QDM. The combination of protecting young bucks while

managing the deer population below the carrying capacity of the habitat creates a more natural and balanced age structure in the population. If herd restrictions are sufficient to improve habitat conditions, the results are more available food for increased body weights, reproduction, and antler development. As more bucks advance into the older age classes, chances of taking a quality animal increase. For this reason, QDM is often referred to as "trophy deer management." Actually, older bucks are more of a by-product of a properly practiced QDM program. In true trophy management, the goal is to produce some substantially older bucks for harvest typically from a low deer population.

QDM philosophy encourages hunter participation at the management level. Instead of being primarily resource users, hunters have increased control over deer herd development. Hunter/managers become more involved with land and habitat improvement, which in turn benefits other wildlife species and often leads to economic benefits for the landowner.

Disadvantages of QDM. The immediate and most noticeable effects experienced by hunting clubs or landowners implementing QDM involve the drastic reduction in total buck harvest. This reduction can be offset in some situations by increased doe harvests; however, once the population is lowered to below carrying capacity, the doe harvest will also need to be reduced. The bottom line is usually an overall

reduction in the total deer harvest. This can often be prevented, however, by a concurrent increase in food supply.

QDM does not produce quick results. Often 5 years or more is required for enough bucks to move into the older age classes. Even then, despite the deer being larger, there will be fewer bucks to harvest as compared to traditional management. Additionally, a reduced deer population means that fewer total deer will be seen. Several of these negative factors can be overcome by habitat improvements which increase deer food supplies such as high quality food plots. These factors may lead to hunter dissatisfaction and ultimately decrease hunter participation. This could cause monumental problems within hunting clubs where it is essential that all members work together to realize QDM goals.

QDM will not work on all properties in all regions or all counties. There are many variables, such as surrounding hunting pressure current deer densities, and habitat that may prevent appreciable gains in deer quality even after setting buck harvest criteria and population goals. Attempts at QDM in these areas may lead to a frustrated hunting experience.

Over the last few years, there has been a tremendous amount of media coverage regarding QDM including TV programs, magazine articles, and private and state-sponsored information meetings. In spite of all these

information outlets, QDM's biggest problem involves unrealistic expectations. QDM is no better than the effort individuals or groups put into the program. Often, a club or landowner will attempt to implement some type of QDM harvest strategy without considering basic background information such as the current condition of the deer herd and habitat. QDM is not the fast track to the Boone & Crockett record book. If so, it would be called Boone and Crockett Deer Management. It moves slightly higher percentages of bucks into the mature age classes, but actual antler size is also influenced by numerous other variables including nutrition.

PRO

- 1.QDM produces an older buck age structure than produced by traditional management.
- 2.QDM increases chances of hunting for and killing a large buck which is important to many hunters.
- 3.Aggressive doe harvests, which may be required for QDM, produce deer herds within biological and sociological carrying capacity.
- 4.QDM encourages hunters to view themselves as resource managers as well as resource users.
- 5.Hunter-managers are more likely to comply voluntarily with hunting regulations and to report observed violations.
- 6.Improved hunt quality may have positive economic benefits

for landowners and communities.

7.Special management may renew interest in deer hunting for some hunters.

CON

1.QDM will reduce total buck harvest.

2.Reduced populations resulting from aggressive doe harvests reduces hunter satisfaction for some.

3.This technique will not work equally well everywhere, and consistent regulations will not be possible because of differences in habitat quality, genealogy, and herd condition between counties.

4.QDM protection of 1 1/2 year-old bucks eliminates many biological tools for monitoring populations including current computer models. QDM requires more intensive and expensive biological data collection.

5.Various antler restrictions decrease the public's ability to understand hunting regulations and increases law enforcement problems.

6.Restrictive regulations reduce resource availability and hunter participation especially by casual and young hunters.

7.QDM by state regulation eliminates other valid options hunters have for managing deer herds including maximum sustainable yield.

8.The nonhunting public does not support trophy hunting. The distinctions between QDM and trophy hunting may be too fine for the average non-hunter to understand.

9.QDM regulations may result in higher lease fees than otherwise would have been required.



There are several ways that land owners or deer hunting clubs can improve deer habitat or deer herd carrying capacity on their land. Agricultural food plots are an important tool.

Habitat Management

There are several ways that landowners or deer hunting clubs attempt to improve deer habitat or deer herd carrying capacity on their land:

1)timber management practices for deer; 2)installation of food plots; 3)fertilizing native fruit or nut-bearing trees or vines. 4)application of salt-mineral mix; and 5)supplemental feeding for deer. Note: salt and supplemental feed do not improve habitat quality or the carrying capacity of the land. Neither practice is recommended or endorsed by WRD and neither is as valuable as food plots or other habitat management practices.

1)Timber management practices for deer include reduction in size of cutting units, thinning and prescribed burning, use of seed tree and shelterwood cuts, managing for older timber stands, wider spacing between planted pines, and saving a hardwood component of 20% or greater concentrated in streamside management zones. Management for browse, soft mast, and hard mast (oaks) are important for your deer herd. Detailed timber management practices are beyond the scope of this booklet. In addition, many deer hunters do not have the authority to manage the timber on their leased hunting lands. For specific timber management details and possible financial assistance with forestry related wildlife management, contact your local Wildlife Resources Division wildlife biologist.

2)Food plots are an excellent way of establishing a high quality food source for deer. See Tables 2 and 3 for fall and spring deer food plot mixtures, planting dates and seeding rates. If you can get permission to plant and have access to a tractor and harrows, and don't have large acreages of wheat, soybeans, alfalfa, corn, or grain sorghum on or near your property, chances are good that you can attract, produce, and harvest more deer with food plots. They may be a key ingredient for success in your deer management program especially in industrial pine forests.

What should you plant? First of all, the importance of lime and fertilizer must be emphasized. Get a soil test and submit to your County Extension Agent for lime and fertilizer recommendations. Lacking a soil test, you can guess that most soils in Georgia will need 2 tons of lime per acre for best results. Application of lime costs roughly \$50 to \$100 per acre the first year but will last for 5 to 8 years without reapplying. Spreader trucks are much more cost-effective and efficient than trying to spread bagged lime by hand or tractor.

TABLE 2. FALL DEER FOOD PLOT MIXTURES, PLANTING RATES, & OTHER INFORMATION.

TYPE (ANNUAL or PERENNIAL)	SPECIES	BROADCAST RATE/ACRE (drilled = half)	ADAPTATION	VALUE COST		PLANT DATES	TREATMENT/COMMENTS (for fertilizer and lime required, see footnotes)
				RANK	RANK		
PERENNIAL MIXTURE	Ladino Clover Red Clover Rye OR Oats Wheat	5 lbs/acre 10 lbs/acre 30 lbs/acre 30 lbs/acre	RID. & VAL.(RV) MOUNT.(MT) PIEDMONT(P) U. COAST.(UC) L. COAST.(LC)	HIGH	HIGH	Sept. & Oct.	Mow frequently to control weed competition. Fertilize once per year in September. All clover needs inoculation.
PERENNIAL MIXTURE	Ryegrass OR Orchardgrass Ladino Clover Red Clover	15 lbs/acre 5 lbs/acre 10 lbs/acre	RV,MT	HIGH	HIGH	Sept. & Oct.	Mow as needed to control grass competition. Fertilize once per year in September. All clover needs inoculation.
PERENNIAL	Alfalfa	30 lbs/acre	RV,MT,P	HIGH	HIGH	Sept. & Oct.	Difficult to establish, high maintenance, needs weevil & weed control.
PERENNIAL	Chickory	5 lbs/acre	STATEWIDE	MED	HIGH	Sept. & Oct.	Drought resistant, heavy nitrogen user.
PERENNIAL	Crownvetch OR Birdsfoot Trefoil	15 lbs/acre	RV,MT	HIGH	HIGH	Sept. & Oct.	Difficult & slow to establish, low maintenance. Inoculate both.
ANNUAL MIXTURE	Austrian winter peas Rye OR Oats Wheat	30 lbs/acre 30 lbs/acre 30 lbs/acre	STATEWIDE	MED	MED	Sept. & Oct.	If deer allow peas to mature, stand can be re-established by disking lightly in August. Inoculate peas.
ANNUAL MIXTURE (RESEEDING)	Crimson Clover Arrowleaf Clover Ryegrass	10 lbs/acre 10 lbs/acre 20 lbs/acre	STATEWIDE	MED	MED	Sept. & Oct.	Stand can be re-established by disking lightly in September All clover needs inoculation.
ANNUAL MIXTURE (RESEEDING)	Crimson Clover Arrowleaf Clover Rye OR Oats Wheat	10 lbs/acre 10 lbs/acre 30 lbs/acre 30 lbs/acre	STATEWIDE	MED	MED	Sept. & Oct.	Stand can be re-established by disking lightly in August. Wheat & rye can be overseeded if desired. All clover needs inoculation.
ANNUAL (RESEEDING)	Ryegrass	40 lbs/acre	STATEWIDE	LOW	LOW	Sept. & Oct.	Ryegrass usually reseeds without disking.
ANNUAL	Wheat OR Rye OR Oats	100 lbs/acre	STATEWIDE	MED	LOW	Sept. & Oct.	Oats or Rye may reseed if disked lightly in September
ANNUAL	Rape OR Kale OR Turnips	5 lbs/acre	STATEWIDE	LOW	MED	Sept. & Oct.	Can be shortlived. Deer use is sometimes light.

* Get soil test. In lieu of soil test, apply 1-2 tons/acre lime and 300 lbs/acre 19-19-19 (or 600 lbs/acre 10-10-10) at planting.

** All plantings with clover, peas, corn, or sorghum need 1-2 tons/acre lime to adjust soil pH upward above 6.0.

One application of lime lasts for 5-8 years.

*** Value rank considers production, utilization, quality, persistence, and palatability.

**** Cost rank considers one time seed price only. Perennials and reseeding annuals are a real economic bonus after the first year.

TABLE 3. WINTER & SPRING DEER FOOD PLOT MIXES, PLANTING RATES, & OTHER INFORMATION.

TYPE (ANNUAL OR PERENNIAL)	SPECIES	BROADCAST RATE/ACRE (Drilled =half)	ADAPTATION	VALUE RANK	COST RANK	PLANT DATES	TREATMENT/COMMENTS (for fertilizer and lime required, see footnotes)
LATE WINTER/ EARLY SPRING PERENNIAL MIXTURE	Ladino Clover Red clover Ryegrass	5 lbs/acre 10 lbs/acre 15 lbs/acre	RID. & VAL.(RV) MOUNT.(MT) PIEDMONT(P) U. COAST.(UC) L. COAST.(LC)	HIGH	HIGH	Sept. & March	Mow as needed to control weed competition. Fertilize as needed once per year in September. This mixture should persist for 3 or more years. All clover needs inoculation.
LATE WINTER/ EARLY SPRING PERENNIAL MIXTURE	Red clover Arrowleaf Clover Oats	10 lbs/acre 10 lbs/acre 50 lbs/acre	STATEWIDE	HIGH	HIGH	Feb. or March	Clover stand can be re-established by disking lightly in August. Wheat & rye can be overseeded at this time, if desired. All clover needs inoculation.
LATE SPRING ANNUAL	Grain Sorghum	10 lbs/acre	STATEWIDE	MED	MED	May to June	Let stand through following winter & deer will eat seedheads.
LATE SPRING ANNUAL MIX	Grain Sorghum Aeschynomene OR Catjang peas OR Iron clay peas OR Corn	5 lbs/acre 15 lbs/acre 25 lbs/acre 25 lbs/acre 5 lbs/acre	STATEWIDE	MED	MED	May to June	Let stand through following winter & deer will eat seedheads. Addition of legume improves quality & value. Inoculate legumes.
LATE SPRING ANNUAL	Corn	5 lbs/acre	STATEWIDE	HIGH	HIGH	April to May	Excellent forage but difficult & . expensive to grow.
LATE SPRING ANNUAL	Aeschynomene (also called Deer Vetch or Jointvetch)	20 lbs/acre	STATEWIDE	HIGH	HIGH	May to June	Stand is killed by first frost. Can be successfully mixed with sorghum.
LATE SPRING ANNUAL MIXTURE	Aeschynomene Alyce clover	10 lbs/acre 10 lbs/acre	STATEWIDE	HIGH	HIGH	May to June	Stand is killed by first frost. Can be successfully mixed with sorghum.
LATE SPRING ANNUAL	Cowpeas, soybeans, iron clay peas, mung beans, velvet beans, lab-lab, catjang peas	25-50lbs/acre	STATEWIDE	HIGH	MED	May to July	Very sensitive to overgrazing by deer. Plant only in large fields or mixed with grass family

*Get soil test. In lieu of soil test apply 1-2 tons/acre lime and 300 lbs/acre 19-19-19 (or 600 lbs/acre 10-10-10) at planting.

**All plantings with clover, peas, corn, or sorghum need 1-2 tons/acre lime to adjust soil pH upward above 6.0. One application of lime lasts for 5-8 years.

***Value rank considers production, utilization, quality, persistence, and palatability.

****Cost rank considers one time seed price only. Perennials and reseeding annuals are a real economic bonus after the first year.

Seed and fertilizer costs range from \$50 to \$100 per acre in the establishment year for perennials and every year for annuals. You will be way ahead of the game if you can plant a perennial food plot which comes back from its own root system year after year versus annuals which must be reseeded every year. Studies have shown that costs per ton of forage produced for deer dropped from \$70 per ton in the first year to \$12 per ton in the second year by using perennials. The next best choice is reseeding annuals which come back from seed every year. Anything you can do to avoid planting the same plot year after year would help reduce costs. If you can properly lime and fertilize the soil according to a soil test, then clover/grass mixtures are the best low maintenance foodplot for deer. An excellent perennial mixture which will grow statewide (except in deep sands) is the top one listed in Table 2. Be sure to inoculate the clover and lightly cover the seed with 1/4 inch of soil. Bushhog this food plot once per

year in August and fertilize in September. The clover should persist for a 3-5 year period. Plant this mixture in September or early October for best growth. A good reseeding annual food plot for sandy soils is the crimson clover, arrowleaf clover, ryegrass mixture. This mixture will reseed the following year if mowed in August and fertilized in September. A light disking may be required on some soils in Georgia. On those sites that cannot be limed, plant a fertilized mix of wheat or rye mixed with crimson clover. The crimson clover will reseed when mowed the following August.

In late winter, a mix of arrowleaf clover, red clover and oats or ryegrass can be frost-seeded or drilled on fallow ground with very good results (Table 3). In late spring, grain sorghum (especially bird-resistant varieties) is an excellent annual food source for deer (Table 3). It is similar to corn but is



Browse enclosures (cages) in food plots help you determine differences between heavy grazing pressure and poor crop performance.

drought tolerant and much easier to grow. It is adapted to all regions and should be broadcast in May or June by itself or mixed with aescynomene, peas, or millet (Table 3). Contact your local county agent or wildlife biologist for further details including fertilization and lime rates.

Greatest use of cool season plots (and their greatest value to deer) occur in late fall, winter and early spring. In some years of acorn scarcity, the plots are used constantly by deer from September through March. In areas with high deer densities, or poor food supplies, deer have been known to severely overgraze small food plots, therefore, plots at least one acre in size are preferable.

However, one big asset of both clover and small grains (wheat, oats and rye) is their ability to withstand extreme grazing pressure.

In small plots on lands with high deer populations, soybeans, cowpeas, or most any summer legume are not recommended due to problems with severe overgrazing soon after germination. Jointvetch (aescynomene) and alyce clover are two exceptions which can withstand heavier grazing pressure and provide good late summer forage especially in the Coastal Plain during the late summer stress period. In larger plots (probably 3 acres or bigger), iron clay peas mixed with grain sorghum is a combination which may provide grazing all summer long without overgrazing (Table 3). If peas are killed by deer overbrowsing, then the sorghum still persists and produces.

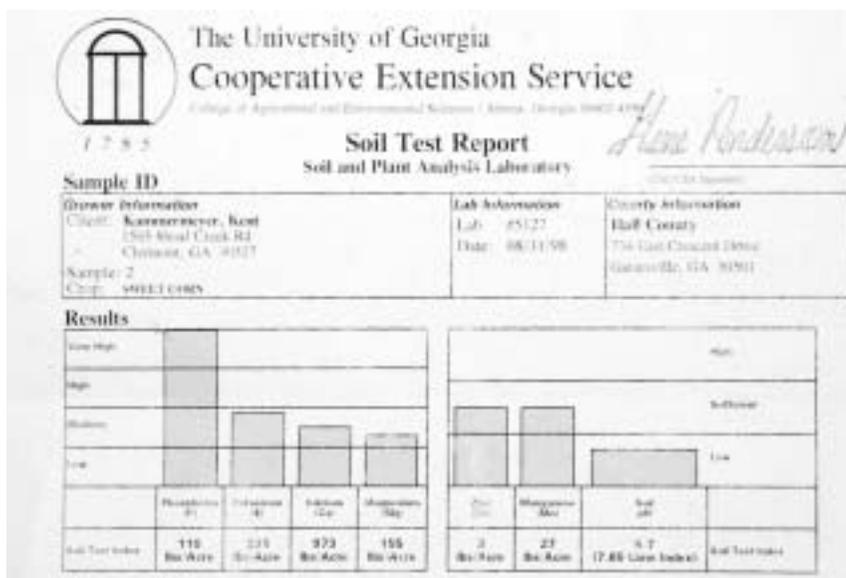
3) **Fertilizer** is an easy, often overlooked and under-utilized way of providing greater quality and quantity of food for deer. Japanese honeysuckle is among the best of all deer foods but is often taken for granted in Georgia. Fertilization of honeysuckle greatly increases quality and production. Find a sunlit patch of honeysuckle on the ground (not clumped in trees), or make one by cutting away competing brush. Fertilize this patch with 150 lbs of ammonium nitrate and 50 lbs of super phosphate per acre twice per year - once in March and once in September. The resulting growth and deer browsing pressure will be apparent almost immediately. Fertilizer can also help fruit and nut bearing species such as crabapple, persimmon, grape, plum and even oak trees. These will require a complete fertilizer such as 10-10-10. As a general rule, apply 1 lb of 10-10-10 per inch of the diameter at breast height for fruit and 2 lbs. per inch for nut bearing trees in the month of March. Fertilizer should be evenly applied under the dripline canopy of these trees. Contact your local county extension agent for details.

4) **Salt** itself (sodium chloride) is used readily by deer but has not been proven to be beneficial to them. In Georgia, it is illegal to hunt over salt except when all salt has melted into the ground and none remains visible on the surface of the ground. This will occur if salt is put out in late winter or spring. Deer use of salt generally is heavy in spring, moderate in summer and much reduced in the fall.

Sodium is a minor component (1%) of antlers but the need for sodium or magnesium by deer has not been determined. The need for Calcium and Phosphorus in a 2:1 ratio has been established but more research is needed on the subject. **Mineral mixes** are available which contain high Calcium (16%) and Phosphorus (8%) in addition to 30-50% Sodium Chloride (salt) and some trace minerals including magnesium. These minerals are generally lacking in Georgia soils and consequently may be lacking in deer diets. Providing these minerals mixed with a salt, which deer definitely crave, may fulfill known deficiencies in deer diet. Although the link has not been clearly proven by research, the minerals provided through salt mixes may improve antler growth. One 50 lb. bag of high calcium/phosphorus mineral mix per every 300-600 acres applied in late winter every year may help buck antler

development or other metabolic needs of deer. This mix should be poured in a shallow hole on flat ground in heavy clay soil and mixed lightly with the soil. However, salt applications definitely will not substitute for a lack of other habitat work. Other deer management efforts (like food plots or proper doe harvest) have much more impact than salt licks.

5) Supplemental feeding of deer with corn, pelleted ration or other feed not grown on the area always has been controversial among wildlife managers. Hunting over bait is illegal in Georgia, so feed must be completely removed 10 days before the season opens or be confined to areas greater than 300 yards from hunting and not in sight of hunters at any distance. Properly done, feed must be put out for a long enough time and in enough quantity to increase deer carrying capacity during the most



A soil test provides information vital to the success of your food plot.

stressful period of the year (usually winter). A winter feeding program can theoretically result in more deer (or healthier ones) carried through the year.

Studies show that long term supplemental feeding will increase carrying capacity for deer if it is done consistently year after year throughout the natural stress periods. However, costs can be very high, ranging from \$13 to \$83 per deer per year. Food plots are much more cost effective than supplemental feed. Supplemental feeding, however, can be expensive and can cause herd health problems and habitat damage when it is discontinued. Also, feeding with corn and other grains greatly increases the chances of aflatoxin mold infestation which can be detrimental or even lethal to wild turkeys or other birds.

There is debate over the relative value of corn versus pelleted ration for supplemental feeding deer. Usually, pellets prove superior in food shortages but wild deer prefer corn during usual winter conditions. Corn may be an adequate (and less expensive) supplement when deer have access to native browse. Although low in protein, corn is high in energy and is highly digestible. Since it is also low in fiber, vitamins and minerals, deer supplemented with corn need access to these dietary needs from other sources. Although supplemental feeding can raise carrying capacity artificially, there is still a limit to the number of deer the land can support without damaging its basic productivity. Basic habitat problems are never solved by supplemental feeding.

Summary

Lets take some time to summarize the important steps for managing your deer herd properly: 1)establish an objective for your deer herd 2)keep accurate deer harvest records (especially ages) 3) design your doe harvest strategy based on last year's buck harvest and 4)monitor the age and antler development of your buck harvest to continually adjust your total harvest in relation to your harvest objectives.

The rules of thumb and management advice contained in this brochure do not necessarily apply to every property or deer herd in Georgia. The many exceptions that exist point to the need for the collection of data specifically for your hunting land and to the interpretation of those data by a qualified (certified) wildlife biologist. Be careful about accepting advice from a self-proclaimed wildlife biologist who has not had appropriate training and certification to support their recommendations. Like a physician diagnosing the cause of an illness and recommending the prescription necessary for a cure, a biologist's prescription is only as good as the information obtained from the patient. Consistent, accurate deer data insures an accurate diagnosis and sound treatment and guarantees a good prognosis for your deer herd.

FOOD PLOT CHECKLIST

(Everyone over 49 needs a list)

- ✓ KNOW YOUR ACREAGE-DON'T GUESS!
- ✓ GOOD ground preparation (plow, disk, smooth).
- ✓ Get soil test.
- ✓ Apply lime (usually 1-3 tons/acre).
- ✓ Apply fertilizer (usually 500-800 pounds/acre...don't skimp)
Add 1 pound/acre Boron)
- ✓ Inoculate legume seed (or buy it pre-inoculated) and don't let it get too hot, its live bacteria.
- ✓ Broadcast or drill seed.
- ✓ Cover lightly-1/4 inch deep!

Ageing Deer(See Back Cover)

You can learn how to tell the age of both buck and doe deer by using their teeth. The first part of what you need to know is easy - its tooth replacement. With a little knowledge you can sort deer killed in the fall into three groups. The groups are 1/2 year old (fawns), 1 1/2 year olds (yearlings), and adults (2 1/2 years old and older).

Here's how. First, remove one entire lower jawbone - one side is all you need. The incisor teeth are out at the end - ignore these. Look only at the teeth on the side of the jaw (jawteeth). Count the teeth. These teeth, the molars and premolars vary in size and have up to three cusps, or little peaks, on each one. The teeth are packed tightly together, so look carefully to make sure where each tooth begins and ends. If there are less than six teeth, the deer is a fawn (1/2 year old). If there are six teeth - the maximum number - look carefully at the third tooth from the small end (front). This is called the third premolar (P3) (see back cover). Count the number of cusps or peaks on this tooth. If there are three, the deer is a yearling - about 1 1/2 years old. As the deer approaches 2 years old, the three cusped premolar which is a baby tooth, is forced out by a new two-cusped tooth, which grows in from underneath. If the third premolar (P3) is a brand-new unstained two-cusped tooth, sharp-edged, and not quite up to the height of the tops of the adjacent teeth, the deer is still in the 1 1/2 year old age category. Sometimes you can

see the two-cusped premolar underneath the three-cusped tooth after the jaw is cleaned of muscle.

If the third premolar is two-cusped and fullgrown up to the height of the rest and shows some stain and wear, then the deer is 2 1/2 years old or more. These rules apply to both bucks and does.

To tell the exact age of deer in the 2 1/2 year and older category, you need to know how to evaluate wear on the teeth. This is much more difficult and subjective. To see the wear, look down at the top of the teeth - you will see white enamel on the outside bordering a dark line of dentine inside. The relative width of dentine showing on the highest crowns of the 3 rear teeth (molars) allows a biologist to evaluate wear and estimate the age of older deer. As deer get older and wear increases, the width of the dentine line becomes wider than the surrounding enamel line. This occurs from front to back. On the first molar (adjacent to P3), if the dentine is wider than the enamel, the deer is 3 1/2 or older. If the dentine is also wider than the enamel on the second molar, the deer is 4 1/2 or older. If it is wider on the third molar, the deer is 5 1/2 or older. At 6 1/2, the first molar pretty much becomes flat and smooth. At 7 1/2, this happens to the second molar and again to the last molar at 8 1/2. It is rare to see a doe older than 8 1/2 and extremely rare to encounter a buck this old. Besides, for management purposes, ages beyond this are relatively meaningless.



CHRONIC WASTING DISEASE (CWD)

While no evidence currently exists to indicate that CWD has made it into our quality deer herd, discoveries of the disease in Minnesota, New Mexico, Wisconsin and several other states has proven that no state should consider itself immune. As a result, the Georgia Wildlife Resources Division (WRD) initiated a 5-year survey this past deer season in an attempt to determine if Georgia's white-tailed deer herd may have been infected with CWD.

Sampling during the 2002-2003 deer hunting season included sites in Dawson, Harris, Macon, Marion, Oconee and Toombs Counties. Collections came from hunter-harvested deer. A total of 336 samples were collected under this program. All samples have been tested. The results from these samples are all non-detection of CWD. This is certainly good news, but additional samples in future years remain to be tested in accordance with our targeted surveillance program.

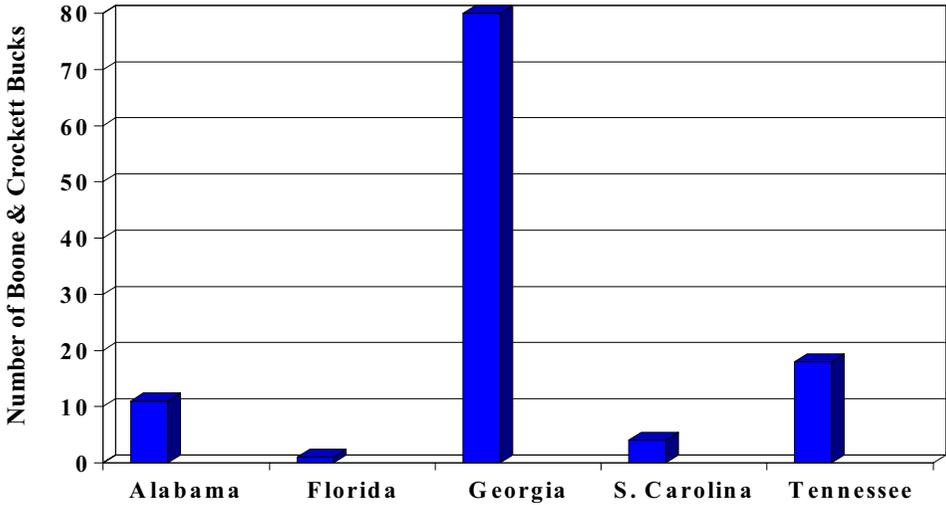
Even though WRD is not expecting to find animals testing positive for CWD, Georgians will benefit from knowing that our deer are being sampled. If CWD is detected during the survey, Georgia will likely benefit from the proactive survey and can take steps to control the disease. You can help proactively protect Georgia's quality deer herd against the disease by:

- **Reporting illegal importation of deer or elk and illegal baiting by calling (800) 241-4113.**
- **Discouraging management practices that result in high concentrations of deer over small areas including supplemental feeding, baiting of deer, and lack of adequate doe harvest. These practices increase disease risk by concentrating sick deer with healthy deer.**

For more information visit us on the web at www.gohuntgeorgia.com or call (770)918-6416.

Boone and Crockett Bucks

Entered in All-Time Record Book Through 2000
Georgia and Surrounding States



Pope and Young Bucks

Georgia and Surrounding States (1980-2001)

