



BILL LEA

# Get The Lime Out

**For successful food plots, skipping the lime is not an option. Here are some ideas for reducing the size of this task without reducing food-plot**

By Rans Thomas

As most QDMA members are well aware, applying lime is a critical step in producing high-quality, maximum-yield food plots. Yet, among the general hunting community, it surprises me how many would-be food-plot growers overlook or neglect this step. I can think of many explanations — lime must be applied in very large amounts, often tons per acre; it works best when applied well in advance of planting and fertilizing; and it often requires specialized equipment for proper application. Though proper liming will never be as simple as throwing a few sacks in the back of a pickup before heading to the woods, I can offer several tips to make lime application easier and less expensive.

## What is Aglime?

Let's start with some basics. Aglime is simply limestone that has been mined from the earth and processed. There are two types of limestone used as aglime: calcite and dolomite. The most common type encountered when ordering from dealers is dolomitic lime. Aglime is composed of four main components: calcium (Ca), calcium carbonate ( $\text{CaCO}_3$ ), magnesium (Mg), and magnesium carbonate ( $\text{MgCO}_3$ ). It's mainly applied to raise the

pH level of the soil. Raising pH levels of soil (or making the soil more alkaline as opposed to acidic) will allow plants to fully utilize residual soil nutrients and the fertilizer that you apply at the time of planting. If the soil pH of your food plot is too acidic and you do not apply lime, the plants will not fully utilize the fertilizer you provide — you will invest a lot of work and money in a doomed food plot. Overly acidic soils can cause several problems such as poor soil structure, increased leaching rates of important nutrients, poor nitrogen fixation from legumes, poor plant root-system development, herbicide ineffectiveness and, of course, poor soil-nutrient utilization by plants. The most common deer food plot plants require a soil pH between 6.0 and 7.0 to reach maximum production rates and nutrient levels.

For more detailed information about aglime and how it functions in crop production, I recommend you order a copy of *Aglime Facts*, a publication available from QDMA for only \$2.50.

## Bulk lime vs. Bagged lime

Aglime for food plots comes in two basic forms — bagged lime and bulk lime. Both are ground limestone, however bagged



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*When it comes to applying lime by the ton to large areas, managers should consider all the options. Getting the job done with small ATV spreaders (left) will take longer. But large, bulk-lime spreader trucks (right) may not be able to reach remote food plots and will waste a lot of lime by overspreading when applying lime to small or narrow plots. The author highlights the better options that remain.*

Many suppliers of agricultural lime also lend or rent pull-behind, belt-feed spreaders like this one (right). If your tractor does not have remote hydraulic hook-ups, the belt and spreader can be operated by manually engaging a mechanical wheel assembly to the tire of the trailer (below). The trailer can be transported to and from your property with a pickup.



lime comes in two forms: a finely ground powder and pellets. Pelletized, bagged lime most often comes in 40-lb. bags. It is more concentrated than bulk lime, takes effect faster and is easier to apply, but it does not have the residual staying power of bulk lime. Applying 1,000 lbs./acre of bagged lime on average will have the same



effect as applying one ton of bulk lime (a 1:2 ratio). Bagged lime usually costs between \$2.60 and \$3.50 per bag depending on the brand and/or place of purchase. It is popular because it contains very little moisture and works well in gravity-fed spreaders. A gravity-fed spreader is a large, tapered hopper with a gated base that feeds the contents onto a winged distribution pan. These implements are not very expensive, and there are several types made for use on both tractors and ATVs.

The disadvantage of using bagged lime other than the higher price is the time and labor it takes to haul, dispense and dispose

of several individual bags. At a one-ton-per-acre applica-



tion rate, which is common, 25 of the 40-lb. bags will be needed. If you are preparing 10 acres or more, you will have to purchase and handle more than 250 bags at this rate.

Bulk dolomitic aglime is not packaged and has a texture much like moist sand. Bulk lime costs around \$25 to \$40/ton, although it may range as low as \$11/ton in states where lime quarries are common. To save time and money, I always go with bulk lime in food-plot preparation for the following reasons:

1. Bulk lime is less expensive. Applied at a rate of one ton per acre, bulk lime may cost anywhere from \$11 to \$40 per acre

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## Determining Plot Size for Accurate Lime Application

Because lime application rates are based on units per acre, the first step to be taken prior to food-plot preparation is to determine the acreage of the areas you wish to plant. This is a relatively easy task if you own a hand-held GPS unit with the capability of determining surface area. However, a simple manual field method can be applied to determine acreage with nothing more than a calculator and your two feet (a measuring wheel can replace your feet if you happen to have one).

An average man or woman's normal step measures around 2.5 to 2.8 feet in distance. Determine your exact pace distance by measuring your toe-to-toe step distance several times on the ground and taking the average to determine the distance of your pace. You are now ready for acreage assessment.

First, I'm making the assumption that your food plot is not perfectly square. Choose a starting point somewhere on the perimeter of your intended food plot and count your paces until

you have circled the plot back to your starting point. Multiply your number of paces by your average pace distance, and round off the inches at this point to make the calculations easier.

Example: 352 paces times 2.7 = 950 feet.

Divide the distance of the perimeter in feet by four — you have now converted your food plot into a perfect square:

950 divided by 4 = 237 feet.

Now multiply the length of one side by itself:  
237 x 237 = 56,169 square feet.

You don't have to be a math wizard to get the picture at this point. Divide the area of your plot in square feet by the number of square feet in an acre, which is 43,560:

56,169 divided by 43,560 = 1.3 acres.

You now know the acreage of your food plot. If you have already determined how much lime you need to apply per acre, then you know exactly how much lime to order.

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as mentioned above. Bagged lime is more expensive at an average cost of \$76 per acre (\$3.05 per 40-lb. bag at 1,000 lbs./acre).

2. Bulk lime has a longer residual effect in the soil, which may reduce the need for lime application to once every three to six years in some cases (follow annual soil testing results to know when to re-apply).

3. Bulk lime application can be much easier and take less time than applying bagged lime if you know a few “tricks of the trade” like the ones I am about to share.

### Applying Bulk Aglime

Bulk lime and powdered bag lime cannot be applied with a gravity-fed type spreader, because it has a minimum 10 percent moisture content, and it will become impacted in the hopper. It is most often applied with a belt-fed spreader. This type of spreader consists of a large container mounted on a single- or tandem-axle trailer or truck body with large flotation tires. At the bottom of the container is a chain-link belt that moves the hopper contents out of a gate at the back of the spreader and onto two winged distribution pans.

There are three types of belt-fed spreaders: 1) a self-contained spreader truck; 2) a hydraulically operated, pull-behind spreader; and 3) a mechanically operated, pull-behind spreader.

Hydraulically operated spreaders or spreader trucks are most useful in large-scale farming. They are very difficult to calibrate correctly for most of us and are normally set to cast the contents 40 to 50 feet on either side. Because many woodland food plots or “trigger patches” are often only an acre or two in size and take

## A New Bulk-Lime Option for ATVs



Bulk lime and powdered bag lime become compacted in most “cyclone”-style spreaders because of their moisture content, which rules out most ATV spreader implements for applying lime by the ton. The model shown above is a new product designed to spread all forms of lime, including moist bulk lime and powdered bag lime. The “Groundbuster” is crafted in Pennsylvania by B-I-H Enterprises. For more information on this implement, call (717) 656-3021.

on a variety of shapes, you will probably be casting a lot of lime outside of the planting area if you use a hydraulic spreader.

A mechanically operated, pull-type spreader is ideal for applying both lime and fertilizer to food plots, and the good news is that most lime and fertilizer dealers keep pull-behind spreaders on their yard and will provide them to you to apply the bulk lime or fertilizer you have purchased. This type of spreader will have an arm-and-wheel assembly on one side of the container. When you are ready to spread lime, the wheel on the arm is engaged against the large flotation tire of the trailer. When you pull the trailer forward, its wheels turn the mechanical drive wheel, which then drives the chain-link belt and the distribution pans of the spreader. The great thing about this setup is that the distance the contents are cast is determined by the speed at which you pull the trailer. Using this type spreader, I have limed trail-type food plots no more than 10 yards wide without over-casting lime. Another advantage is that the gate at the back of the spreader controls the application rate. Once the gate is set, which is a very simple procedure, you will be applying the same rate per acre at any speed. On most pull types, the gate must be opened fully to apply one ton per acre, but some types with larger gates can apply multiple tons per acre. The arm-and-wheel assemblies on the trailers I have used can be engaged by a hydraulic cylinder if your tractor has remote hydraulic hook-ups, or if not the wheel can be engaged manually. **Note:** Remember not to put your tractor in reverse while the spreader-wheel is engaged to the trailer tire — on most models I have seen this will damage the mechanism, and your lime program may suddenly become much more expensive than you estimated.

There are small versions of pull-behind, belt-fed spreaders made for ATVs that work well, but the smaller hopper means more time spent driving to the lime pile for refilling.

Most pull-types can hold five to six tons of lime, meaning that at a one ton/acre rate you can apply lime to around five acres of food plots without dealing with bags and with only a trac-



### **Killebrew**

Most pull-type spreaders hold around six tons of bulk aglime. If you are planting six or more acres and/or your lime requirements call for two to three tons per acre, then you will obviously have to fill the spreader more than once. Even if the lime dealer is just down the road, you will still have to disconnect from your tractor, reconnect to a vehicle, return the spreader to the dealer for refilling and then return to the planting site again. Having to do this several times can be a logistical challenge and will cost you in time and fuel. To avoid this problem, I encourage you to ask your dealer if they can provide a side-dump trailer.

“Killebrew” is the name of one company that produces these large trailers, and in some areas the brand name has stuck as a reference to all trailers of this type. They usually consist of four to five large containers that can be filled with several tons of lime each. The containers can be

*To save trips back to your lime supplier for refills, your supplier may be able to drop a loaded “Killebrew” trailer at your property. Each bin on the trailer can be dumped hydraulically as needed.*

tor or heavy-duty truck to pull it. If you are interested in using bulk lime this spring for your warm-season food plots, I recommend you contact a local fertilizer and lime dealer. Ask if they have pull-type spreaders for use (and if so, reserve one ahead of time as they are popular with farmers around liming time). Most dealers that I have dealt with will load the spreader and calibrate it for the rate that you wish to apply. Simply go to the dealer’s location, connect to the spreader with a full-size pickup or SUV, and take it to your land, where a tractor (55hp or greater) will be used to pull the spreader. You can even apply the lime with a four-wheel-drive pickup under dry conditions, but it can be difficult getting started with a full load.

dumped by way of hydraulic cylinders, which are usually operated by a small, gas-powered engine located at the back of the trailer. The Killebrew containers can be filled with the appropriate amount of lime and taken to your property by the dealer and dropped off. Once the trailer is on site, you can dump the lime into the spreader as needed, allowing you to apply lime to a large area without returning to the dealer for refills.

### **Bulk Lime Dump Sites**

Bulk lime can also be brought to your property in a dump truck and piled at a staging area. If you have access to a bucket  
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### **About This Article**

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loader or front-end loader, then a bulk lime dump site may be your best option. Bulk lime can be simply dumped on the ground, but you may not be able to load the last of it effectively because it will mix in with the soil on the bottom of the pile. If you choose this delivery method, then it may be in your best interest to create a lime dump on your property.

Lime dumps usually consist of a clean, hard bottom with retainer walls of some form on three sides. The most common dump sites have a concrete floor with two side walls and a back wall. Some are dug into a hillside or into the ground. Some have retainer walls made of concrete or piling posts. These sites can help accommodate faster loading, more efficient use of lime, and defer the potential rental cost of a Killebrew — but they are only useful when used in conjunction with a bucket loader.

### **Lime Check-List**

The following is a bulk lime application check list that you may find useful whether using bagged or bulk lime.

- 1) Pull soil samples from plots in advance of planting and submit them for testing with information about what will be planted in this soil. Allow yourself enough time to get results back and still apply lime 60 to 90 days ahead of planting.
- 2) Cross reference your soil sample pH results with the recommended soil pH level for your plant species to determine the application rate of lime.
- 3) Determine the individual acreage of each plot and the total acreage.
- 4) Contact your local seed and fertilizer dealers to locate

bulk lime and spreaders. Pre-order the amount of lime you need and reserve the spreader. Also, ask that the spreader be pre-calibrated to your desired application rate if the rate is fairly consistent across the plots that will be limed.

5) Lime should be spread on bare dirt for optimum reaction with the soil, so till the plots prior to liming if possible. Incorporating the lime into the soil by tilling three to four inches deep after spreading is recommended to mix it thoroughly through the root zone and speed up the reaction time by 30 days in most cases.

6) In larger food plots allow 20 to 30 percent overlap of the outside edge of the spread pattern on return passes with a pull-type spreader. Application amounts are weaker in the fringes of the spread pattern.

7) Always return a spreader better than you found it, and you will always be welcome to use it again.

There are few shortcuts when it comes to proper lime application, and skipping the lime is, of course, not an option. Hopefully the ideas I have shared will reduce the size of your chore without compromising on food-plot quality.



**About the Author:** Rans Thomas received his associate's degree in wildlife and forest management from Abraham Baldwin Agricultural College and his bachelor's in wildlife management from The University of Georgia. He has managed hunting plantations in Georgia and South Carolina, and he is currently a pro-staff biologist and the national service manager for Tecomate Wildlife System's new Wildlife Consulting Service division. This is his first article for **Quality Whitetails**.