TURNING DIRT

By **Mark Trudeau**, National Sales Manager

Part Five: Seeders – Chapter One

In this series of articles, The Whitetail Institute's agricultural expert, Mark Trudeau, passes along his decades of real-world experience in farming and related matters to our Field Testers. In the first three segments of "Turning Dirt," Mark provided his insight to help first-time buyers select a food-plot tractor and discussed tractor implements suitable for ground tillage, such as plows, tillers, disks, drags and cultipackers. If you missed the earlier segments or if you would like to review them, they are available on line at www.whitetailinstitute.com under the "Whitetail News" link. In this segment, Mark discusses seeders.

Hand-held, shoulder-carried or other small, human-powered broadcast seeders usually have a bag or small bucket to hold seed, a shoulder strap, and a hand-crank mechanism.

This is the first in a two-part segment in which I'll cover equipment used to perform one of the most critical steps in planting a food plot — seeding.

In our discussion, we'll be using the term "seeder" to refer to any implement used to physically place seed in or on the surface of a seedbed. Some seeders can be used to perform double duty for other plot-preparation tasks, for instance as fertilizer spreaders. But, for ease of reference, we'll refer to all of them as "seeders" in this article. There are two general types of seeders commonly used to plant food plots: broadcast seeders and drills. Within those two categories, there are different sub-types.

Choosing the type of seeder you should use for a particular application will depend heavily on a number of factors. These factors can combine in lots of different ways, and the result can require a very specific seeding technique that may be accomplished better with some types of seeders than others. In order to give you enough information for you to make an informed decision, we'll need to cover these issues in detail, and since I did not want to try to cram too much information into a single segment, we'll cover seeders in two chapters.

In Chapter 1, we'll cover general seeder information, identify the major types and sub-types of seeders commonly used in food-plot applications, and how they are mechanically similar and different. In Chapter 2, we'll combine that information with some of the critical issues we discussed in earlier segments to help you choose the right seeder for your application.

FEATURES FOUND ON ALL SEEDERS

We'll be covering two types of seeders in Part 5: broadcast seeders and drills. We'll also break these down farther and discuss subtypes. In our discussion of broadcast seeders, we'll talk about hand-held units (which I'll also treat as including shoulder-carried units), ATV seeders (which include those that are bracket-mounted to ATVs and others that are towed by ATVs), and tractor-mounted "cyclone" seeders. We'll also cover two types of drills: grain drills and hard-land drills.

Before getting into how these differ from one another, let's look at features they have in common. All seeders, whether broadcast seeders or drills, share the following three features:

1. One or more reservoirs such as a bag, bucket, bin or box to store the seed while it waits to be distributed,
2. A power source, and
3. One or more mechanisms to . . .
   - Regulate how much seed flows out of the reservoir, and
   - Send the seed somewhere after it leaves the reservoir.

Now, let's break things down further and look at each of these features as they appear on broadcast seeders and drills.

SEED RESERVOIR

Broadcast Seeders: Hand-held, shoulder-carried or other small, human-powered broadcast seeders usually have a bag or small bucket to hold seed, a shoulder strap, and a hand-crank mechanism. ATV broadcast seeders usually hold seed in a small bucket or bin, and tractor-mounted "cyclone" seeders hold seed in a large bin.

Drills: Drills also have one or more reservoirs to hold seed. Grain drills usually have one box to hold seed. Hard-land drills usually have two boxes to hold seed, a large one for large seeds, and a smaller one for small seeds. These boxes are referred to as "hoppers."

POWER SOURCE

Broadcast Seeders: A hand-held or shoulder-carried seeder is carried by the person operating it, and its mechanism is powered by his arms. Some ATV broadcast seeders are ground-driven, but most of the ATV-type seeders you'll see are mounted to an ATV with a bracket and are powered off the ATV's battery. We prefer the ATV-mounted type because the ground-driven type can have a tendency to skip or bounce over uneven ground. Cyclone seeders are designed in one of two ways — either to be pulled by a tractor, or mounted to a tractor's three-point hitch and carried. Their seed-disbursal mechanisms are powered by the tractor's power takeoff unit ("PTO").

Drills: Drills are free-standing implements, meaning that they are pulled by a tractor. Seed level in the hopper is monitored by a mechanical gauge. The seed-disbursal mechanism is powered by a wheel that rests on the ground and is connected to a gear in the implement. The faster you go, the more seed goes out. Therefore, unlike the disbursal mechanism on broadcast seeders, speed does not affect how much seed a drill puts out in a given area.

SEED-DISBURSAL MECHANISM

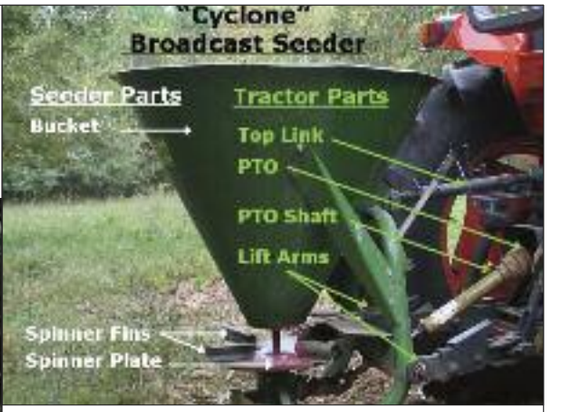
Broadcast Seeders: Seed flow through broadcast seeders is powered by gravity, and volume is

All broadcast seeders use a spinner plate with fins to disburse seed.

adjusted in two ways: by pre-setting the size of the opening of an adjustable gate at the bottom of the reservoir, and by the speed at which the implement passes over the ground. The wider the gate is set, the more seed will fall out of the reservoir. The faster the implement moves over the ground, the less seed it will leave in a given area. Seed level in the hopper is visually monitored, either directly or through a viewing window on the side of the hopper.

All broadcast seeders distribute seed in the same way — by launching it out in an arc. Seed drops out of a broadcast seeder's hopper by gravity and falls through a gate that can be adjusted for flow. Once the seed clears that gate, it falls onto a "spinner plate," which is a flat, horizontally mounted disk with little fins spaced evenly along its top. As the mechanism runs, the spinner plate rotates, and as seed drops onto the spinner plate, the little fins hit it, launching it out in an arc much like a batter hitting a baseball. The seed then lands on the seedbed wherever its arc takes it. All broadcast seeders distribute seed by way of a spinner-plate mechanism.

ATV broadcast seeders that are mounted instead of pulled can provide more even coverage on rough ground."



Some cyclone seeders are tractor-mounted.

Drills: Seed flow volume is adjusted manually, and hopper volume is monitored by a mechanical gauge. Seed leaves the hopper through the flow-adjustment mechanism and enters a series of rubber tubes evenly spaced along the bottom of the implement. The seeds then fall through the tubes by gravity to the ground directly behind the openers.

So far, we have covered the features that can be considered universal, or common to all seeders,

whether they are broadcast seeders or drills. Let's recap those features:

- **HAND-HELD SEEDER**
  Reservoir: Bag
  Power Source: Your arms, legs and hands
  Mechanism:
  Seed-Flow Regulation: Adjustable Gate
  Seed Disbursal: Spinner Plate

- **ATV-MOUNTED SEEDER**
  Reservoir: Small Bucket
  Power Source: ATV Battery
  Mechanism:
  Seed-Flow Regulation: Adjustable Gate
  Seed Disbursal: Spinner Plate

Cyclone seeders cover ground quickly, but are harder to adjust precisely for small seeds.

- **TRACTOR MOUNTED "CYCLONE" SEEDER**
  Reservoir: Large Bin
  Power Source: Tractor Hydraulics or PTO
  Mechanism:
  Seed-Flow Regulation: Adjustable Gate
  Seed Disbursal: Spinner Plate

- **DRILL**
  Reservoir: Box Hopper(s)
  Power Source: Tractor Hydraulics
  Mechanism:
  Seed-Flow Regulation: Box Adjustment
  Seed Disbursal: Tube

WHAT MAKES DRILLS DIFFERENT — SEED PLACEMENT

Now, you know that all seeders have a reservoir and an adjustable mechanism to disburse seed in controlled amounts, and that they need a power source. That's where the similarity between broadcast seeders and drills ends.

The key thing that all drills share, and that separates them from broadcast spreaders, is that drills have a seed-placement mechanism to control placement of seed once it leaves the reservoir. Unlike broadcast seeders, which all launch it out to land where its arc takes it, drills physically place seed in a specific position on or in the seedbed. They do this through a unique mechanism mounted at the bottom of each seed-disbursal tube.

Drills are pulled by the tractor's drawbar.

We'll be talking about two kinds of drills: grain drills and hard-land drills. Grain drills can place seed directly onto a prepared seedbed or under its surface, depending on how the operator sets up the implement. Hard-land drills do the same thing, except the seedbed need not be prepared first by disking or tilling. Let's look at the components of these seed-placement mechanisms.

"Openers" and "Packing Wheels": Most drills have openers, and either packing wheels or chains. Openers are smooth, round disks that are mounted in front of each tube, with the tube usually fastened to the opener. Openers cut a V-shaped furrow in the soil ahead of the tubes, which then drop seed into the furrow. The furrow is then closed over the seed by either a packing wheel or a chain that is mount-

ed in line behind the opener.

Openers on grain drills are not heavy duty. That's because they are designed to open a furrow in ground that has recently been disked or tilled and so is very soft. They cannot be expected to open furrows in harder ground.

"Coulter Blades": If you read "Turning Dirt, Part 2" on plows, you're already familiar with coulter blades. These are sharp, heavy-duty disks that are either flat or corrugated. Just like coulter blades on plows, coulters are an attachment found on hard-land drills. They perform the same function as they do on plows: they pre-cut the ground ahead of the openers so that the drill can be used to plant even in soil that has not been prepared first by disking or tilling.

"Down Pressure": All drills are built on a chassis, which rests on two wheels. Hard-land drills are much heavier than grain drills, so most hard-land drills have a third wheel, which is mounted on the drawbar for support and leveling. The hoppers, tubes and mechanisms of the drill ride on the drill's chassis as the implement is pulled across the ground. To raise or lower the seed-placement mechanism, the operator uses the tractor's hydraulics to raise or lower the entire implement's chassis. This adds considerable weight to the seed-placement mechanism and increases its cutting power.

That pretty much covers the basics about what the different seeder types are, and how they are physically similar and different. Next time, we'll

Unlike broadcast seeders, which throw seed out in an arc, drills place seed precisely in or on the seedbed.

recap some of the critical planting issues we've covered in earlier segment, and then examine how they affect your decision as to what type of seeder you should use for a particular application.

CHAPTER ONE — Q&A

Q: What are the three types of broadcast seeders most commonly used to plant food plots?

A: Hand-held or shoulder carried seeders, ATV-mounted seeders, and tractor-mounted "cyclone" seeders

Q: What is the difference between what broadcast seeders and drills do with seed?

A: Broadcast seeders throw seed out onto the surface of a seedbed, and drills physically place seed in a specific place, either on or in the seedbed.

Q: What seed-distribution mechanism do all broadcast seeders have?

A: A spinner plate.

Q: What is one advantage of ATV-mounted broadcast seeders over ATV-pulled broadcast seeders?

A: Some ATV-pulled broadcast seeders can have a tendency to skip or bounce when pulled over uneven ground.

Q: What is the biggest difference between broadcast seeders and drills?

A: Broadcast seeders do not control seed once it leaves the reservoir. Instead, they launch seed in an arc, and the seed lands wherever its arc takes it. Drills control the seed all the way to the ground and place the seed in a specific place in, or on, the seedbed.

Q: What is the main component difference between the seed-planting mechanisms of a grain drill and a hard-land drill?

A: Hard-land drills are essentially the same as grain drills, but with coulter blades attached in front of the openers.

Q: What are some other differences between grain drills and hard-land drills?

A: Grain drills usually have only one hopper. Grain drills also usually have two riding wheels, while hard-land drills, which are much heavier, usually have a third wheel, which is mounted on the drawbar for support and leveling.