



Broadcast Seeding

BMPs for CRP

WHAT AND WHY

Broadcast seeding may be simply scattering seed on the soil, but it is not as simple as throwing out seed and hoping something will grow. As always, site prep is critical as is the even distribution of the seed on the soil and incorporating the seed into the soil.

Broadcast seeding provides a couple advantages over drilling or planting seed. Foremost it allows seeding to be done in the dormant season (November – March) when the ground is frozen allowing natural stratification of seeds. This mimics the natural process with seeds dropping to the ground at the end of the growing season. It also reduces the chance seed will be planted too deeply in the soil (most CRP type projects use seed that does best when planted in the top 1/4" of soil). A final reason is that it is often easier for individual cooperators to secure broadcast equipment than native no-till drills.

HOW-TO OVERVIEW

To reiterate, broadcast seeding is not JUST throwing seed on the ground and hoping for it to grow. To have a successful project you must have 1) proper site prep, 2) seed must be properly mixed, 3) equipment must be calibrated and 4) seed must be incorporated into the soil.

SITE PREP

Site prep is perhaps the most important step (but not the topic of this article). Ideally you are striving for a weed (green and growing) and litter (dead vegetation on the ground) free, firm (boot print less than 1/2" deep) seed bed that resembles a harvested no-till bean field.

BROADCAST SEEDING RATES

For most CRP type projects, resource professionals are targeting between 20 and 30 pure live seeds (PLS) per square foot. Many planners also agree that for broadcast seedings and dormant or frost seedings of any method, seeding rates should be increased. Many standard seed mixes have been developed to target spring drilled seedings, so generally most broadcast seedings are recommended to be increased by around 50%.

Be sure to check with your local NRCS service center before ordering to know if you need to increase your seeding rate. FSA may question you when you seek reimbursement if your order (15 acres for a 10 acre project) exceeds the acres on your contract. As the local technical experts, you will need to know that NRCS will be able to explain the difference in quantity.

EXAMINE YOUR SEED

Most suppliers bag CRP-type seed separately with large fluffy seed in one bag and small seed in another. For large projects you can mix them together for broadcasting, but for smaller projects we recommend leaving them separated and applying in separate passes. Even distribution of similarly sized seed is easier than seed of different sizes.

ORDER SEED ONLINE AT: www.PFHabitatStore.com

or call – 866-914-7373 with questions

PARTITIONING AND MIXING

Partitioning your seed into smaller segments will reduce the chance you will run out of seed and need to buy more for your project. It should be done PRIOR to mixing with any carrier.

1. If you plan to use "Method 2: Bulk Pounds Per Acre" to calibrate your broadcast equipment, remove the calculated amount of seed needed for your fractional measured area.
2. SEPARATELY for your large and small seed, divide into equal quarters by bulk weight.
3. Determine if you will be seeding large and small seed separately or together. Separately is recommended for smaller projects (<5 acres).
4. Choose an appropriate carrier and rate to mix with your seed partitions.
5. Mix the appropriate carrier with each of your partitions. Mixing can be done in large plastic totes or on a concrete slab using a flat shovel.
6. Be sure to load only one partition into your seeder at a time and use only on your partitioned project.

CARRIERS / FILLERS

When you buy seed from a reputable supplier, your seed will be very clean. Many native wildflowers have hundreds of thousands (or in some cases millions) of seeds per pound. An acre of seed may weigh less than 5 pounds and fit in a gallon bucket so evenly distributing this seed can be challenging.

Carriers are very important when seeding native mixes. Native grasses / fluffy seed may not be heavy enough to flow through the spreader and seeds of differing sizes settle at different rates. Carriers work to add bulk weight to the seed ensuring a more even and predictable distribution across a project.

When choosing a carrier, consider seed size. You may use separate carriers when seeding large and small seed separately. For large seed and mixed large and small seed projects, consider using rice hulls, cracked corn, cocoa hulls, pelletized lime, vermiculite or oats. Consider damp sawdust, kitty litter or sand as carriers for small seed.

Rate recommendations for carriers vary from a 1:1 rate of filler to seed up to 5:1

PARTITIONING AND MIXING EXAMPLE

You are planning a 10-acre CRP project and have received a bag of seed. The outer bag is full of large seed and has a bulk weight of 32#. Inside is a bag of small seed with a bulk weight of 8#. You plan to calibrate using Method 1: Seeds/ft² so do not need to partition out seed for calibration.

1. Partition your seed into four 8# piles of large seed and four 2# piles of small seed.
2. Mixing can be done in plastic totes or on a concrete slab using a flat shovel. Be sure to mix thoroughly to achieve a homogenous mixture.
 - a. If seeding large and small seed separately - mix 8# of cocoa hulls with each of the 8# piles of large seed (1:1) and 2# of damp sawdust with each of the 2# piles of small seeds (1:1). The result should be 4 piles weighing 16# each and 4 piles weighing 4# each.
 - b. If seeding large and small seed together – each 8# pile of large seed with a 2# pile of small seed. Then mix 10# of cocoa hulls with each 10# pile. The result should be 4 piles of 20# each.

**QUESTIONS??? SPEAK WITH A WILDLIFE EXPERT at:
866-914-7373**



CALIBRATING EQUIPMENT – TWO METHODS

Calibrating your equipment may mean the difference between having enough seed for your project and needing to make a phone call to order additional seed. A few user manuals for broadcasting equipment might provide good information on calibrating native seed mixes; but for the many that do not, below are two methods. **Note** that if you are seeding large and small seed separately, you will need to calibrate separately for each seed size.

METHOD 1: SEEDS PER SQUARE FOOT

1. Calculate your planned bulk seeds / ft². Divide your bulk pounds per acre by your PLS pounds per acre (both can usually be found on seed tags). The number should be greater than one. Multiply that number by the planned PLS seeds per square foot (available from your seeding plan or seed supplier).
2. Spread out a large, light canvas drop cloth (preferred) or tarp.
3. Load seed / carrier mix into seeder and make a single pass across the drop cloth.
4. Count the seed (do not count any carrier) in 3 to 5 random 1-foot square sections (a PVC frame is easy to build) and find the average. You should also note the width of spread of seed (not carrier) to know spacing between passes during seeding.
5. Compare your sampled seeds / ft² to your planned **bulk** seeds/ ft² (from step 1).
6. Make adjustments to your opening if necessary and repeat until sampled distribution matches the planned distribution.
7. Add the spread seed mixture back into your seeder.

METHOD 2: BULK POUNDS PER ACRE

1. Measure out a fraction of an acre. For easy math, one tenth (1/10th) of an acre is 4,350 square feet. If your seeding equipment spreads seed 10 foot across, you need to travel 435 feet.
2. Calculate the amount of seed needed for the measured area using the bulk seed rate. For a project with 5 bulk pounds of seed per acre, and a 1/10th of an acre measured plot, you need ½ of a pound of seed.
3. Mix in your carrier.
4. Seed the measured area. Open your seeding aperture barely large enough for the largest seed to get through. Watch your seed levels while seeding.
5. Ideally you will run out of seed just as you finish seeding the measured area. If you ran out of seed much before completing the measured area, reduce the size of your opening and or consider adding additional carrier. If there is a small amount of excess seed, don't worry about it, but if there is a significant amount of seed remaining, increase the size of your opening.

SEEDING CONSIDERATIONS

With calibrated equipment and seed that is mixed and partitioned, there are a few more things to consider before scattering seed on the ground.

1. Is the site properly prepared? Poor site prep is the best way to ensure your project will fail. Good site prep will be free from weeds (green and growing) and litter (dead vegetation on the ground), firm (boot print will be less than ¼" deep) and overall resemble a harvested roundup ready bean field.
2. Timing
 - a. For spring seedings try to seed just ahead of a rain after the soil temp has reached 60 degrees
 - b. For dormant seedings target a light (2" or less), early winter snow. Your tracks and the seed will be easy to see and the sun will quickly send seeds beneath the snow.
 - c. Target late winter for frost seedings. The heavy, crusted snows should be gone and throw seed out on a light (2" or less) snow when mother nature has freeze-thaw temperatures in her forecast. The warming sun will help seeds fall through the light snow and the freeze-thaw action will gently work the seed into the soil.

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SEEDING METHODS

During your calibration of your broadcast seeder, you should have identified the width that seed was distributed. Be sure not to use the carrier to determine seeding width as it often travels further than seed.

Seeding on a fresh sheet of snow or on a clean seed bed can help provide easy-to-identify markings of your seeding journey, but overlap or lack of is something to consider. One possible solution is to make sure you overlap in your seeding and to purchase a little extra seed to make sure you don't fall short.

Another solution is the checkerboard pattern of seeding. This method is basically applying $\frac{1}{2}$ of the needed seeding rate in a north-south direction and then the remaining seed applied in a perpendicular east-west direction. This method involves doubling the number of seed partitions and doubling your carrier rate.

INCORPORATION

Once all the seed has been spread across the project, it is time to ensure good seed to soil contact. For dormant and frost seedings, mother nature will take care of this with her freeze-thaw cycles creating small cracks for the seed to settle into and incorporate into the soil.

For spring projects, after the seed is spread, a pass with a cultivator provides the desired seed to soil contact. If a cultipacker is not available, a lawn roller could be used with similar success. For small plots where neither is available, several passes with equipment can help to ensure better incorporation.

MANAGING FOR ESTABLISHMENT

Your habitat project doesn't end with seeding. During the first growing season, native perennial grasses and wildflowers put most of their efforts into their root structures.

You will probably see some of the native annuals and biennials (black-eyed Susan, partridge pea) during that first year, but there will also be a number of annual weeds that emerge from the seed bank. Don't panic. These are annual weeds designed to establish quickly, but the native perennials have a long-term strategy which should ultimately result in the habitat you desire.

Mowing can be a useful tool in the early development of native habitats if done so with these guiding principles:

1. Only mow if it is necessary. In establishing CRP plots, there was negligible differences in side-by-side comparisons of mowing and not mowing. Mowing is necessary a) to prevent a perennial noxious weed like Canada thistle or pigweed from going to seed, b) if thick weeds are shading out and out competing developing seedlings.
2. Mow high. High means above the developing seedlings. A standard mower mows at 4 inches at its highest setting. Mowing high is done at 12 inches and above.
3. Mow at a frequency that does not result in thick thatch smothering seedlings. Usually the recommended timing is around the 1st of July and 1st of August.
4. Remember, mowing can destroy nests.

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