

RESEEDING GRAZING LANDS



INTRODUCTION

When grazing lands and pastures are disturbed by climate, use, or weed invasion, a landowner may need to evaluate improving the production capability and condition of a site by reseeding.

Landowners must consider many factors when deciding to reseed including the cost to benefit ratio, reseeding method, available equipment, selection of grass species, timing the effort and what to expect.

COST/BENEFIT of RESEEDING

If a site is disturbed or in substandard condition, it is always environmentally practical to reseed pastures. However, the financial investment to reseed pastures including seed, fuel and equipment and time may vary from \$200- to \$1,000 per acre depending on method and seed selection.

If properly managed, after reconditioning, a pasture can potentially return as much as \$35 - \$100 per acre in annual return. This means that financial return on reseeding investment may take as much as 3 to 20 years to balance the investment cost. Environmental and social values for re-establishing good pasture condition are always high but often fiscally difficult. Strong healthy pastures filter water, provide wildlife habitat, establish aesthetic view, and reduce airborne dust in addition to providing a stable production location for agriculture.

ALTERNATIVES TO RESEEDING WHOLE PASTURES

Often, only certain segments of grazing lands are in need of reseeding. If a landowner is unable to implement seeding, there are a few options.

A manager should consider staging a seeding effort so that annual investment cost is spread over time while initial stabilization and return from the effort begins to produce before complete implementation.

Often, grass stands will recover and improve if the intensity of use and competition for nutrients and water are reduced. For this reason it is always advisable to undertake an Integrated Weed Management Plan (IWMP) and reduce the intensity of grazing use on a site until it fully recovers. A manager must constantly monitor whether such a combined approach allows the desirable plants to recover or whether additional weed species or accelerated erosion begin on the site.

SEEDING GRASS BASICS

In general, grass seed needs to be planted from 1/8" to 3/8" deep in the soil and in a condition where it is covered and in "strong" contact with the soil. The smaller the seed, the shallower it needs to be planted since it has less energy reserves to germinate to the surface. If a seed is left on the surface, it is usually eaten by birds, rodents, and insects. Those seeds that are not, usually dry out and do not germinate.

SEEDING APPROACHES

Two basic methods, drilling and broadcasting, are used for pasture seeding. Drilling plants seed directly in the ground and broadcasting places it on top of the soil.

SELECTING A METHOD

DRILLING: Drilling grass seed into the soil is the most efficient. It is best done with a "grass drill" that is pulled behind a tractor. This type of drill plants the seed in rows as it travels. The seed is metered down a tube and slides into a slot in the soil that is cut by one disc wheel and then "packed" into the soil firmly by a packer wheel that follows the deposition of the seed.

Since grass seed varies in size, weight and "fluffiness" these drills have several feeder boxes and metering mechanisms to be able to mix several species in the same pass across a pasture.

Reseeding with a grass drill requires a power unit (tractor), fuel, seed, time, access to a grass drill that is from 7 to 14 feet wide (requiring certain hauling equipment) and or rental or purchase costs.



BROADCASTING: The process of reseeding by broadcasting involves manually or with a machine "broadcaster" spreading seed on top of the soil on a needed site.

This method works best if the seed is set out on moist (or soon to be moist) soil and is then either covered by, raked into, or harrowed into the top of the soil and then packed down.

This method also requires about <u>twice</u> the pounds of seed per acre that drilling does since the animals, birds, and insects directly prey on the seed as a food source. Uncovered and un-incorporated seed can easily be dislodged and moved away by wind. Because of the reduction in equipment requirements the broadcast method is preferred by many newly established landowners. The doubled costs of seed makes an impact a little later on the owner.

A variation of broadcast seeding is hydro-mulching. This method is where you contract a company to come out and spray a mixture of grass seed, fertilizer, a "tackifier" solution that holds moisture, and sometimes a herbicide element, onto the ground. This method has not proved economically or establishment feasible on rangelands since the cost per acre is very high and the seed seldom gets in direct contact with the soil before the solution dries out. It does work well on horticulture, extreme risk and heavily supervised sites.

Livestock producers have found that by broadcasting seed on trouble spots and then feeding animals on the area, the seed is packed into the ground fairly well. This approach, referred to as "herd effect", replaces the harrow and packer with animal hooves. It is necessary to remove the animals after the event until the grass is well-established.



PIONEERING: A newly developed method of seeding is one of starting "patches" of new seedlings on grazing lands where it is too cost intensive to seed the entire pasture. This method either drills or broadcasts seed starts in areas of one acre in several sites across the pasture to allow the plants to "pioneer" and spread across the pasture. Usually these sites are planted with heavy seed density on sites that are upstream or on higher ground to enhance the spread of seed. Weed management is crucial in this approach.

SELECTING GRASS SPECIES

This first step in starting a grazing lands reseeding effort is to select a grass species or mixture of grass species that meets your needs and hopefully will establish and persist well on a site. The USDA Natural Resources Conservation Service or your local Cooperative Extension office can usually help you determine what might work well on your land.

Warm vs. Cool Season Grasses:

Grass species have long adapted to living in different climates. Warm season grasses begin growing late in the season when soil warms significantly and endure high temperatures, but often produce less forage and leave some ground uncovered. They usually do retain high levels of protein when they cure.

Cool season species start in cooler soil, grow heavier and taller, produce more forage and compete more aggressively but often go dormant or die in the heat of summer. These types of grass typically lose most of their protein when curing which limits the amount of "optimum" use for grazing.

Native vs. Introduced Grasses:

Native species that already exist on a landscape tend to be well suited for re-entry and easily work with the ecosystem.

Introduced species may or may not work well in an area or specific climate. These should be closely reviewed for use, feasibility, and trial success in your area before investing.

Single vs. Species Mixtures:

Planting a mixture of desirable grass species is considered to be the soundest approach. When you plant a mixture of grasses, you enhance the chances for initial success despite variations in seeding depth, competition, precipitation and temperature on any given year. Often, the cool season plants in a mixture will emerge rapidly and stabilize a site allowing warm season species to become established. Mixtures of grass also offer more flexibility, durability and can enhance both the length of the functional grazing season and the quality of wildlife habitat.

Bunch vs. Sod Forming Grasses: Some grasses form sod, like lawn, while others just make "bunches" of clumps. Make sure you have a landscape goal that matches the species you select.

Rhizomatous vs. Fibrous Roots: Grasses with rhizomes (horizontal roots), can start and spread new growth without actually starting new plants. They also hold soil in place in harsh environments where capturing water is enhanced by the rhizomes. Fibrous roots are "hair like" and tend to be easier to pull up or displace.

PURCHASING SEED

When purchasing seed, it is important to buy from a reputable source, purchase based on Pure Live Seed (PLS) percentage, and minimize the weed content in seed.

Pure Live Seed is the percentage of the seed which is viable and has the ability to germinate and grow. A bag with 100% PLS is all viable. A seed with only 90% PLS has 10% of trash or "duff" in it including dead plant fragments, etc. Your seeding is based on pounds of PLS per acre, so buy the highest PLS seed you can. It costs more for good seed but you don't have to buy the "duff" at the same price and it germinates. In the long run – it's cheaper.

Weed Free Percentage follows the same line of "quality" thinking. If a seed is 95% "weed free" – you are buying 5% weeds. These may undermine your seeding efforts.

Usually, seed bought directly from SEED companies is the best. Some retail distributors buy the "seconds" (low grade

cull seed) from the seed companies and sell it cheaper – there's a reason. In general, try to buy seed that is 99-100% Pure Live Seed and is 98-99% Weed free.

TIMING YOUR EFFORTS

Success in seeding grazing lands is as much timing as it is a science. Knowing the growth cycle of your grass species and the optimum conditions such as soil, climate, precipitation patterns, density of planting and coordinating the effort with your forage demand is crucial.

Grass should be planted so that is has firm contact with the soil particles. For that reason, planting when the soil is dry and cracked or flooded will limit success. Most successful dry range seeding in Colorado is done late fall after plant dormancy or early spring prior to growth. This allows the grass seed to be planted and NOT germinate until moisture and temperature are at an optimum in the early to late spring.

If grass begins to germinate and has insufficient water and temperature, it will use up the carbohydrate reserves in the seed and then die from lack of leaf development and photosynthesis. Even if it has a little of both it must flourish until it has the ability to store reserves in the roots (4 leaf stage) or it will die over the winter.

Planting grass seed in an area where domestic or wild herbivores (grazers) will use it immediately upon emergence will thwart the seeded area in most cases. If you do plant an area that will be grazed (not advisable for 1 or more seasons) do it so the grass seeding area is used at the end of the growth season.

Fertilizing grass seeding areas is not usually advisable until the stand of grass is well established. Any sooner just benefits the rapid-growing weeds and wastes funds. Weed management must take place before, during and after grass seeding to minimize nutrient competition in the area.

EXPECTATIONS

After seeding a parcel of grazing lands or pasture – don't expect immediate results. Once conditions are viable it still takes 21-45 days for a grass stand to germinate under native conditions.

Those conditions may vary greatly with climate. The success and speed of the grass germination also varies with site characteristics.

The grass stand will be young, fragile and immature for some time. The establishment rate for warm season species is slower than cool season grasses. Ground cover may only go from germination to 40% cover in the first season.

If the stand is to stabilize and prosper, you need to defer use of the site for 1-2 grazing seasons. If not, the expectancy is that you will need to reseed on a regular basis.

In any area of Colorado and most western states your best sources of information are the USDA Natural Resources Conservation Service, the landgrant Cooperative Extension offices such as Colorado State University Cooperative Extension and local Conservation Districts.

This factsheet was developed by Scott Cotton, Colorado State University Extension Agent, Range Management and Greg Clark, Coordinator for the Colorado Grazing Lands Conservation Initiative as part of the Colorado GLCI educational outreach activities.

Colorado GLCI, Colorado State University, and the USDA NRCS cooperating. GLCI programs are available to all private lands grazers without discrimination.