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Strategies to

Improve Poor Pasture

Experts from different regions suggest species and management studies to increase success.

by Heather Smith Thomas

There are several ways to improve degraded pasture. Joe Brummer, associate professor and extension forage specialist for Colorado State University, says a person needs to assess present condition of the pasture and decide if it's worth trying to save what's there and just add something to improve it.

"Determine which plants are present, and their productivity and quality," Brummer advises. "Are there weeds you don't want? Are they just annual weeds that are fairly easy to control, or perennial noxious weeds — like Canada thistle, spurge, knapweed, etc. — that will require herbicide to get them under control?"

Glenn Shewmaker, state forage specialist at the University of Idaho, recommends taking a close look at the pasture to decide whether renovating will be economical.

"There can be reasons to do it, such as putting in forage species more suited to your purposes or that might last longer

than the last time it was seeded. If grazing management, irrigation and fertility are not well-addressed, however, you might be wasting time and money trying to improve/ reseed a pasture," Shewmaker says. "If it's currently Kentucky bluegrass because you've grazed it continuously, reseeding efforts will only delay production while you reestablish the pasture, cost money, and even though you'll get some benefits for a few years, it will go right back to bluegrass."

Figure out your goals. Then, if you decide to do some interseeding or reseeding, look at soil fertility to know if it will support the new plants, he recommends. "If you don't have proper soil fertility, this is your opportunity to add something. If the soil has low pH (acid soil), you could work in some lime if you want to add legumes."

He recommends figuring out which species you need, either to extend grazing or provide more production. Often the producer is looking for species that enable

cattle to graze longer in the fall or winter. Tall fescue is the best grass to stockpile for late fall and winter grazing. Of the cool-season grasses it will produce the most and preserve the best into winter, compared to orchard grass, Shewmaker says.

If you need something to put gain on yearlings but already have plenty of tall fescue or coarser, less palatable grass, he suggests adding something

like perennial ryegrass or meadow brome. Improvements in grass genetics, especially in yield benefits and/or resistance to certain diseases, provide some advantages with newer varieties, he says.

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Interseeding

There are ways to improve an existing pasture without plowing it up.

“Interseeding means you don’t till — just seeding into an existing stand to fill in the blank spaces and add new species,” says Shewmaker. This works well if there are places in a pasture that have been overused or trampled out.

“You’ll have the highest chance of success if there is some visible bare ground,” Brummer says. “It will be easier to interject new plants, since competition will be reduced.”

Plants compete for water, nutrients, light and space, he explains. New plants must have space for roots to grow. If space isn’t available, with bare ground visible, you can reduce competition by knocking down other plants with herbicides to help get new plants established.

“With interseeding, you don’t lose the

whole year of grazing; you only lose half the year, but you have to protect new plants from grazing for a while,” says Shewmaker. “Clipping is recommended the first season. Making hay has less impact and creates an even canopy height, whereas cows would probably prefer the new seeding and leave the old grass.

“We’ve done studies to compare different methods to try to get a successful interseeding,” he continues, adding that grazing the old pasture very close the fall before to remove all the forage you can is one option. This stresses the plants, reducing their growth the next spring before you interseed, thus reducing competition for the new plants.

Brummer recommends using electric fence to concentrate the grazing animals, moving them around the pasture in tight groups to get a lot of hoof action and animal impact.

“Then you can seed those areas. Sometimes you need to come back and give it a quick, light grazing — if the existing plants start to grow back before the new seedlings have a good start — to remove more of the overstory,” Brummer explains.

Another way to retard the older plants, but not kill them, is by applying a sublethal rate of glyphosate (Roundup®) to knock them back, Brummer says. “This is more effective than just trying to graze them.”

Timing is critical in terms of when you seed it afterward.

“It looks at first like you’ve killed everything, but soon it greens back up,” says Shewmaker. “You have to do it at the right time, in conjunction with new seeding. Joe Brummer led the studies we did here at Kimberly, Idaho; Fort Collins, Colo.; and Klamath, Ore. We applied glyphosate at a rate of 2 quarts per acre after the grass greened

Spring or fall

Timing of seeding will depend on your location, and whether the pasture is dryland or irrigated.

“With irrigation you can do a spring interseeding,” says Joe Brummer, Colorado State University extension forage specialist. However, he warns that there will be lots of competition in the spring from existing vegetation. Thus, he prefers interseeding in August.

“You could take a hay crop off that pasture or graze it heavily until early August, then use herbicides or mechanical tillage, or mob-grazing, then seed it and water it,” he explains. “You’ll get those new plants far enough along that they’ll survive winter and be strong enough to continue on.”

Existing vegetation isn’t as vigorous in the fall as it is in spring, Brummer says. “I’ve had a lot of success with August seedings if we have water for them. On dry land, however, it depends on your environment and whether you have fall rain or late summer rains like we do in Colorado and some other parts of the west.”

Brummer recommends a dormant-season seeding on dry land, somewhere from November through March — whenever the ground is not frozen or covered with snow. That places the seed in the ground for when temperatures warm up in spring and there’s some winter soil moisture. The idea is to get the seed germinated and new plants established before it gets hot.

“It’s always a gamble when you don’t have irrigation water. We’ve had good success with dryland seeding here in Colorado in late June and early July, just ahead of our monsoon summer rains. If we have enough moisture for a long enough period of time, we can get seedlings established with a little help from Mother Nature,” he says.

In his part of the country, renovations in the spring don’t work as well as in the fall, says Bob Coleman, University of Kentucky state extension specialist. “It’s hard to get a new seeding of grass going in the spring. You could probably add a legume like white clover in the spring, but it would be better to seed it on top of the snow.”

You might add some cool-season annual grasses to provide grazing through the summer, then clean up weeds and reestablish permanent pasture in the fall.

“Often, it’s best to do a two-stage program. You could use millet or a cereal or annual ryegrass that would provide some good grazing until you can reseed permanent pasture,” he explains.

“A two-stage plan often works nicely. Planted in early spring, summer annuals can provide forage until you can get the ground ready for fall planting. It also pays to let the new seeding become well-established before you put grazing animals on it. Some of the summer annuals like oats, ryegrass and some of the millets can handle it because they grow differently,” Coleman says. Cover crops and cocktail mixes will grow quickly and provide a lot of biomass for grazing and outcompete the weeds.

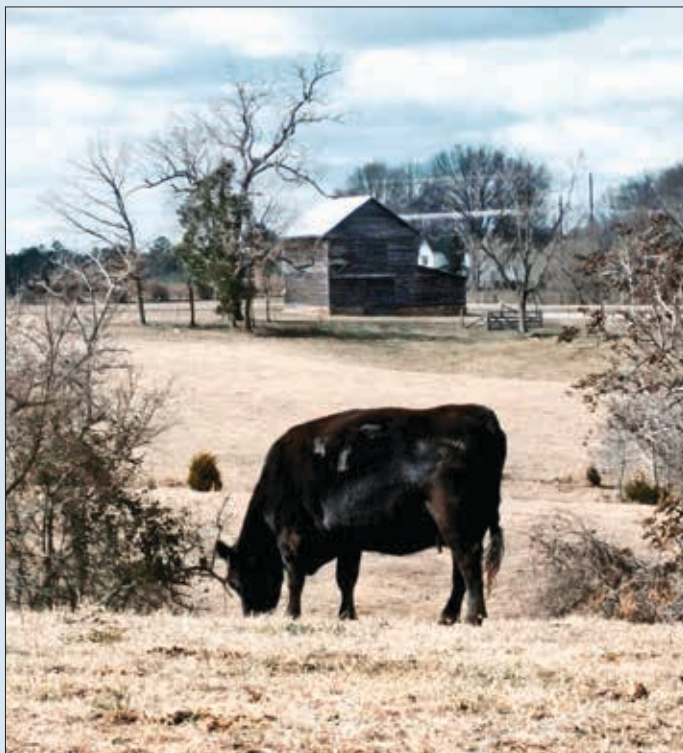


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up in late April/early May. Then 2 weeks later we drilled seed. We tried alfalfa, white clover, bird's-foot trefoil, sainfoin and red clover, and this was the most effective way to do it, especially for legumes," says Shewmaker.

"Adding a legume can really extend a pasture. Everyone in our region has grass in May and June, but in July and August the cool-season grasses slow their growth. The best way to fill that mid-summer slump is with a legume. It keeps growing, adds nitrogen to the soil (reducing the fertilizer bill), and provides a well-balanced diet for cattle with high-quality pasture."

The downside is bloat risk, but non-bloating legumes, like bird's-foot trefoil, can be used, he observes. "You can keep the grass component as the majority, but add enough legume that you don't need any nitrogen fertilizer."

Equipment is needed, whether for full tillage or interseeding. If you want to do interseeding, a no-till drill is essential, Shewmaker says. You can broadcast seed, but while sometimes this works, most of the time it does not.

Brummer says it's always best to use a drill that puts seed in good contact with the soil, rather than just broadcasting it out on the ground.

"Broadcasting, especially for grass seed, doesn't work very well unless you've roughed up the ground adequately with a disk or rototiller," he says. "Then you could put animals out there for a week or 10 days to

press the seed into the ground with hoof action. That works if you don't have a drill, but is not as successful as drilling the seed.

"Seeding depth is critical, typically not more than ½ inch for grasses and legumes. Thus you need some kind of depth control on your drill," he continues.

"It's difficult to get good seed-to-soil contact in an existing stand of grass, even with a good no-till drill," says Shewmaker. "It's fairly easy to open up the drill and get the seed down into the ground, but the challenge is good seed coverage, packing/firming the ground behind the drill."

Trampling seed into the soil with livestock can work during certain times of year, depending on soil moisture.

"Pivot irrigation helps make that work, where you can keep the ground wet with

just the right amount of moisture," says Shewmaker.

Changing a stand completely — such as trying to convert a stand of tall fescue to orchard grass, may be more difficult, he says, especially with a vigorous grass like tall fescue.

"In a pasture that isn't being used, glyphosate works really well at taking out Kentucky bluegrass, allowing you to put in a deeper-rooted grass like orchard grass or meadow brome," he says.

Advantages of interseeding, compared with complete reseeding, include being more cost-effective and reducing erosion potential. Many western ranches have a lot of slope, and a person has to try to minimize erosion.

"There is also less downtime and loss of productivity," Shewmaker says.

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Native rangeland

"We don't recommend seeding into native pasture because usually a degraded range is a function of poor management. The best way to improve it is to address the cause and change the management," says Kevin Sedivec, North Dakota State University range nutritionist. "For native range, management is the driver on pasture health."

Usually the native plants that thrive in good balance in any specific region are the best and most sustainable type of range pasture, when grazed properly and given adequate rest periods. Even on an overgrazed, degraded range, the decreaser plants that tend to disappear with heavy grazing are still there, but in small numbers — enough to provide root stock and a seed base.

"If given a chance, they will come back. In these situations it is better to improve the range pasture with a change in management than to try to reseed it," Sedivec says. "We also don't recommend adding fertilizer to native range because it tends to skew the function of soil bacteria and fungus, favoring exotic cool-season grasses and putting native plants at risk."

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“Disadvantages include higher risk of failure, and interseeding drills are not as available as conventional-till drills. It can also take two to three years before interseeded plants achieve full productivity because initially they are under the stress of competition from the other plants. You have to be patient.”

Reseeding dryland pastures

Kevin Sedivec, professor of range science at North Dakota State University, says your options will depend on whether it's irrigated pasture or dryland pasture.

“About 80% of our pastures are dryland. When we talk about pasture renovation/restoration on the Northern Plains, we're talking about a seeded pasture like crested wheat, brome grass or intermediate wheatgrass that may or may not include alfalfa. These types of pastures make up about 95% of our pastureland that has been reclaimed or reestablished (from farmland),” he says, noting that whether the pasture needs renovation will usually depend on its age and past use.

“Usually the reason a pasture might need help is because it lacks fertility, and we need to address that problem. By contrast, if you live in the West where there's a lot of cheatgrass, you may not want to add fertilizer because you'll be aiding cheatgrass. We don't have much cheatgrass invasion here, until you get into Montana and Wyoming. So on the Northern Plains we generally recommend

adding nitrogen to pastures to rejuvenate them. Often the grasses are still there, but have become weak and spindly, with some gaps and bare ground,” he explains.

In his area, he said it is almost always nitrogen that's lacking, not phosphorus or potassium. Forage production can essentially be doubled in two years just by adding a fertility program to those pastures, so that's the first thing he recommends addressing.

If the pasture has actually gone backward and has a lot of bare ground, it may be necessary to reseed.

Advantages of interseeding, compared with complete reseeding, include being more cost-effective and reducing erosion potential.

“Normally we'll interseed the same species that are already there. If it's crested wheat, we interseed with that. Otherwise we may get grazing-distribution problems. If you interseed crested with brome, the cows will select the brome and it will go backward again. So you try to match the species as best you can,” he explains.

Then the main choice involves whether to add a legume.

“In our region it's generally alfalfa because we have the right soils for alfalfa. We might add alfalfa to increase natural fertility (since legumes add nitrogen to the soil), as well as to gain a higher-quality feed,” Sedivec says.

“The downside of alfalfa is bloat risk. Some producers prefer to add a non-bloating type of legume. In our region this would be something like cicer milkvetch, or bird's-foot

Local advice best

Talk with your local Extension people for advice on specific plants, seeding guides and timing to fit the region and climate. Some of the little things making an important difference. Timing of planting would be different in Texas than in Idaho or Montana.

“Find out which species work best in your region and climate,” says Bob Coleman, University of Kentucky state extension specialist. “Some won't work very well. I had that experience when a producer heard of a particular plant and thought he could substitute it for something else that had a similar name. It didn't work in his area.”

Coleman adds, “If you don't have experience using summer annuals, for instance, get some advice on how to do it so that it works for your situation.”

trefoil as you go farther east. As you get even farther east, such as Minnesota and Iowa, people tend to use red clover,” he explains.

“Our biggest problem with many crested and brome grass pastures is invasion of Kentucky bluegrass. The West gets cheatgrass, and we get bluegrass,” Sedivec notes. “The bluegrass is actually a fairly good grass and very palatable, but doesn't produce as much biomass as brome or crested, doesn't tolerate drought conditions, and is harder to get rid of. You nearly have to spray it and then interseed.”

You still need to resolve why the stand is going backward, he says. “Is it a function of grazing pressure, timing, number of animals, so that over time it has lost vigor and plant density due to overgrazing? You still have to address the management issues.”

Perhaps the producer moved onto a new place (leased or purchased) that has been overgrazed and has to deal with the effects of poor management from the past. Sedivec says this is a common scenario when people buy or rent new ground. The pastures don't look very good, and the buyers seek ways to improve them.

“Obviously, the final recommendation, if the desired plants are nearly gone, is to start over. If there is essentially nothing but bare ground and weeds, we interseed a new stand. In our region we try not to plow it up; there is no reason to disturb the soil and risk erosion. It's almost always best to kill the current stand of vegetation with a nonselective herbicide and then do interseeding,” says Sedivec.

Editor's Note: Heather Smith Thomas is a freelance writer and cattlemaster from Salmon, Idaho.

Controlling weeds

“Before seeding anything, assess weeds,” says Bob Coleman, University of Kentucky state extension specialist. “In some places here last year the buttercup did really well. This broadleaf plant takes over our pastures. It can be fairly easy to control with spray, but you don't want to spray if you've just seeded a bunch of clover,” he says.

“It pays to have a plan for controlling the weeds and be ready to get on that fairly quickly in the spring. Some of the broadleaf plants come on early and when they are still small we can do a pretty good job with spray,” says Coleman.



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