Cheat Grass

By Heather Smith-Thomas

Protein supplement can be used strategically to encourage cattle to use areas they might not otherwise graze. This can enable cattle to use more of a fall or winter pasture, or reduce fuel loads for wildfires on a dry year.

Barry Perryman, Professor of Rangeland Ecology and Management, University of Nevada (Reno) has long been interested in the problem of cheat grass (downy brome) and ways to utilize it. "I looked at what has been happening in the West since the 1960's and the things we've been doing since the late 1970's in respect to cheat grass dominance on many ranges. The cheat grass was already here, but it has greatly increased its dominance across the landscape," he says.

"What we've been doing in terms of management and cheat grass control has not been working. I have been traveling to central Asia off and on during the past10 years to take a look at what the cheat grass is like over there. Most of the cheat grass here in the U.S. has more of a Mediterranean or European ancestry, but this grass is common in central Asia. Eurasia is the ancestral home of cheat grass," he explains.

"Over there, they don't have issues with it, like we do. In fact, it can be hard to find cheat grass unless you look underneath a thorny shrub where animals can't get to it. Those regions don't have range fires. They don't have the fuel buildup like we do because their land use approach is different. Their lands are more fully grazed; if forage is available for something to eat, something eats it." There isn't a fuel buildup that rolls over from year to year, adding more dry material that could readily burn.

Here in the U.S. the fire risks have increased dramatically in the past 50 years. "Certainly since the late 1970's we have gone to the idea that we need to leave more grass out there, for any number of reasons. Some of these are legitimate goals, but some are just because environmental groups have been pushing the federal agencies to cut back on the number of AUMs and reduce grazing. Thus we've allowed carryover fuels to accumulate on the landscape, to the point that we get catastrophic fires," says Perryman.

"We started an experimental project here because we thought we might be able to reduce the amount of carryover fuels by grazing cheat grass. Grazing cheat grass in the spring isn't that hard; we know that grazing animals will eat it when it's young and green. Many ranchers in Nevada would be out of business by now if they didn't have cheat grass to utilize in their annual grazing cycle," he says.

"We know that cattle will also eat it in the fall, contrary to some public opinion that assumes they won't. When it's green, it's nutritious feed. In the life cycle of the cheat grass plant, it is quite palatable when it's green and growing, but that quickly changes as it matures. By the time it goes to seed and turns purple it is no longer palatable because the protein level drops and because no grazing animal wants to get a mouthful of sharp seed awns. These seeds can be injurious if cattle get them in their eyes or embedded into the mouth tissues. Mouth punctures can lead to infections and abscesses (lump jaw)," he explains.

"The palatability goes way down and grazing animals won't eat it at all, if there is anything else to eat. Yet later in the year, once those seeds drop, the plant becomes palatable again. It's not as pokey anymore. If we can get animals to eat it in the fall,

when the seeds are not a problem, this also alleviates some of the planning issues that are always a challenge if we try to graze it in the spring," he says.

"It's palatable and it's good nutritious feed in the spring, but there are logistic issues that are nightmares every year when we try to utilize it in the spring. You don't know, from one year to the next, when it will be growing. If it's a mild winter and a warm, wet early spring it will be green and growing in February here. But other years, on a cold dry spring, it may not start growing until April. You don't always know when you will have the right conditions, or when you will have enough of this early grass to turn out. One year it might be February and the next year it might be April. It is difficult to plan your spring grazing. You don't know how many animals it will take to reduce cheat grass to some predetermined level—if our goal is fuels management," says Perryman.

"If you wait until those seeds drop in July—and they are almost always off by mid-August—then you can quickly measure it. You can then determine how much is there (pounds per acre) and know how many animals will be needed to graze it down to whatever level of fuels management you are aiming for," he says.

"All of those logistical issues in the spring disappear in late-summer or fall. You know when you can turn cattle out, how long it will take to graze that amount of cheat grass, and when you will be coming off—and can plan for where you will take the cattle when they come off. All of these decisions are much easier to plan for in the fall," he explains.

"In terms of fuels management, if we have 500 pounds of old dry cheat grass per acre on September 1st, and can reduce that to 200 pounds per acre, this may be the difference between being able to make a direct attack or a non-direct attack with a fire crew. If we can reduce the cheat grass below that threshold level, it can really help. The fire season may be over for this year, but if it's a dry fall it may not be over yet. Even if we get fall rain and don't have to worry about fire in the fall, this would at least be 300 pounds per acre that we won't be carrying over into next year. There won't be the continual buildup," says Perryman.

"This was our initial interest in grazing it. The assumption is that cattle won't eat dry cheat grass because people say there's not much nutritional quality. So we did a little work on this and found that the energy level is usually pretty high (the structural carbohydrates that cattle can convert to energy during rumen digestion), but the crude protein can be low. Actually this can be highly variable, from year to year, just as we've found with perennial grasses. I've seen crude protein as low as 3%, and as high as 8%. When cattle are given a choice, we found that they'd much rather eat cheat grass in October than crested wheat at that time of year, or any native perennial that is not green and growing. Cattle actually prefer the dry cheat grass to the dry bunch grasses because it's not as course. The cheat grass becomes softer in the fall and is not as stiff and wolfy," he explains.

"But if we are going to turn cattle out on cheat grass in the fall when everything is dry, we don't want any train wrecks nutritionally. We were putting these cows out during their 2nd trimester of pregnancy (and their calves are weaned), when their nutrient demand is at the lowest level, but we supplemented them with protein to make sure they would have adequate protein," he says.

If you supplement with protein, this increases feed intake when cattle are eating dry forages that are low on protein. They need an adequate amount of protein to feed the

microbes in the rumen that digest fiber and turn it into energy. If the ruminant animal is short on protein, digestion slows down and the animal can't eat as much forage, and tends to lose weight. "If we supplement with protein, cattle will consume more cheat grass, and any other dry feed out there, than they would without it," explains Perryman.

"We want to get them to eat it as efficiently as possible, so we started putting out supplement tubs—liquid protein supplement. We found that we could move those tubs around and improve cattle distribution in the area we wanted them to graze. We don't have any hard numbers that say the distribution changed from this to that; we didn't study the distribution. But if we move the tubs to the corner of the pasture that's farthest away from water, they will find the protein and graze that area around the tubs," he says.

"We used the supplement to improve the distribution and help increase the intake rate. We published the initial study, on our first project, in the *Professional Animal Scientist* and it came out in March 2014. We found some additional benefits that we are now trying to explore farther, such as seed bank reduction. The cheat grass seed bank dropped tremendously in the grazed areas versus the ungrazed areas," he points out.

"Even though the plants are being grazed after they drop their seeds, the grazing makes a big difference because cheat grass does not establish itself very well on bare soil. It has to have some litter. The more litter the better—such as the old cheat grass plants from last year and all the previous years that they were not grazed. The old standing dead material protects the seed and it germinates in that litter, rather than on bare soil. If you clean up the litter (grazing it off in the fall), any seed that's still there may go ahead and germinate but it dies. It can't survive and establish a new plant on the bare soil," he says.

"We have shown that if there are any perennial grasses out there at all, with the cheat grass, within about 3 years of fall grazing you will shift that dominance from cheat grass to the perennials. The perennials can then keep it at bay, in our experience."

With fewer plants (not such a thick stand of cheat grass—which tends to grow very thick as compared to the bunch grasses), the perennials can thrive better. The young perennial seedlings can see the sun, and also get enough water; it's not all being used by cheat grass. "The young perennials can also get more nutrients that the cheat grass would be competing for," explains Perryman.

"After 3 years of grazing these areas, we saw a flip-flop in numbers. We started with about 500 pounds of cheat grass per acre and only about 100 pounds per acre of perennial grass production. But the end of three years it was just the opposite. That was our pilot study, on about 1500 acres," he says.

"Now we have a larger study going on at the TS Ranch between Battle Mountain and Carlin, Nevada. We started it last fall on about 6000 acres. We had 800 cattle out there for about 5 weeks, trying to graze a straight line across the landscape to create a firebreak—just using supplement as the attractant. Our plan is to create a firebreak in a cheat grass matrix. We are also studying some behavioral aspects of the cattle, this time around, to see exactly where they go and what they do, during the day."

CHEAT GRASS REMOVAL PROJECT ON ROARING SPRINGS RANCH - Stacy Davies, who manages Roaring Springs Ranch near French Glen, Oregon has been participating in a project with University of Nevada (Reno), Range Scientists. "They are working in several areas in Nevada and Oregon using fall grazing to control or manage

cheat grass better, and it appears to be working," he says. Protein supplement is utilized to encourage cattle to make good use of the dry cheat grass.

"Our project here is the same design. We graze our cattle on cheat grass during October and November, using protein supplements. This removes the buildup of dry cheat grass that tends to lodge and create a thick litter mass. The mat of litter makes ideal conditions for cheat grass seedlings the next spring, but is a disadvantage to perennial seedlings," says Davies.

"When we get fall rain, the cheat grass grows again and produces green forage. If we graze it that time of year, whether it's green or dry, this removes it, and kills the next year's cheat grass. Then the next spring the perennial grasses get a chance to grow without competition from the cheat grass." This begins to tip the balance back toward more perennials and less cheat grass.

"We have also effectively grazed it in the spring. This works, as long as your management is really tight and you are monitoring the grass. As soon as the perennials start growing enough that the cattle start grazing the perennials, you have to get off that pasture. The cheat grass usually starts well ahead of the perennials, so if your timing is right you can graze the cheat and get off again before the perennials grow," he says.

"In the fall, it's a lot easier to manage the grazing, because the perennials are not trying to grow. They are dormant by then and it doesn't hurt them. We've had success with both spring and fall grazing, but the fall grazing is just easier." You don't need to watch it as closely.

"In the fall we are grazing dry cheat grass with dry cows, using protein. In the spring we may be grazing the new green cheat grass with calving cows. If we put them out there very early we give them a protein supplement, and if it's later there is enough nutrition in the green cheat grass—as long as there's enough volume. As they eat the new green grass they also get some of the old dry grass from the year before. This gives them the nutrition they need—with the green grass—and the old grass helps fill them up and it works fine," says Davies.

"This is most effective on private land, where we can be more flexible on how we use the pastures. We can manage the grass according to biological readiness and function rather than by the calendar as the BLM does. Too often on public lands the calendar dictates when you can turn cows out on pasture and when you have to move them. We try to graze when we are biologically driven, not calendar driven." There is rarely enough flexibility on public land.

In some regions, however, the BLM managers are recognizing and accepting the value of fall grazing. "This project is set up to be scientifically sound, and as it goes forward the results will be published in a scientific journal. Then it will be considered reliable research that the BLM can use. The range specialists we've been working with have been involved and paying attention, and it has opened their eyes," says Davies.

"I am actually glad that we have cheat grass instead of some of the weeds that are worse, like medusahead. There is an advantage to using grazing instead of herbicide to bring the balance back to the perennials; by using grazing management instead of chemicals, we reduce the cheat grass but don't completely eliminate it—and the cheat grass will out-compete other weeds that are worse. Being able to facilitate a gradual change, with grazing, we don't create a radical change like chemicals would do," he explains.

"In addition, we remove fine fuels with the grazing, and reduce the fire frequency. All too often, once we get cheat grass on a range, it burns every 5 or 6 years. But if we graze in the fall and remove all that fuel and litter, this reduces the fire frequency and we can control fires." They don't burn as catastrophically on a dry year. After a bad fire, however, about the only thing that comes back is cheat grass and weeds and it's a vicious cycle that just gets worse.

"All too often the public land agencies think the answer is to rest it after a fire, but this just makes it worse. On our private lands, we go right in and graze the cheat grass off in the fall, giving the perennials a chance to respond. We've been able to change rangelands from annuals back to perennials," he says.

"Here on our ranch we started spring grazing cheat grass areas 20 years ago. We've only been doing the fall grazing to remove cheat grass for the last 5 years. We have seen good results," Davies says.

"With the potential listing of sage grouse as endangered, this becomes even more important. The biggest threat to sage grouse is wildfires and conversion of rangelands to annual grasses. The more things we can do to prevent fire, the better off we will be. Grazing is a crucial piece of the management; we need to remove enough of the grass that we don't get those big fires," he says.

"In 2012 we were able to graze some areas in the spring that were most in danger of burning, and brought the fine fuels down to a level that we didn't have fire on our ranch. North of us that summer, the Homestead fire burned about 300,000 acres--from our boundary north. From our boundary to the east, the Longdraw fire burned more than a million acres. On our private land we were able to concentrate grazing in the risky areas. We thoroughly grazed the lower elevation lands to remove cheat grass and other fine fuels in the sagebrush areas and eliminated the fire danger. When the lightning storms came we had some strikes, but no fires," he explains.

"Because we were adaptable in our grazing management, this worked. We didn't take any cows to the high elevation mountains that year. We kept them in the lower country to remove all that grass--and didn't have a fire—whereas on both sides of us the conditions were perfect for big fires and they burned. The grazing on our ranch prevented it. This was a good example of what grazing can do. The key to cheat grass management is first to keep it from coming into a pasture, but once you have it, fall grazing can be very beneficial in reducing it and favoring the perennials."

OPPOSITION -There have been some reports and articles written up about the potential for reducing catastrophic fires with grazing. There is a lot of opposition against this kind of project, however, from environmental groups. It goes against their philosophy of land management. They don't want to acknowledge a beneficial use for cattle or this would negate their whole strategy and agenda for removing cattle from public land.

"There is a lot of pushback right now from environmental groups who are anti-grazing," Perryman says. These folks don't want to recognize that grazing animals are our best land management tool if used properly.

The sage grouse controversy is a case in point. "It would be nice if we could just get the anti-grazing people together and let them know that ranchers want to do the right thing, and want to see what we need to do to work this out. The problem, however, is that the anti-grazing interests typically are not interested in solutions. They don't want

answers; their groups are out of business if we have answers." They are only interested in winning, and keeping a battle going so they can keep bringing in revenue for their organizations.

"If they don't have an issue, they can't generate income. They will not compromise or negotiate alternative science-based solutions. If ranchers and land managers try to compromise, the environmental groups just keep moving the goal line and there is never a resolution. The sage grouse issue is the big one right now," says Perryman.

"The number one threat to sage grouse and every other species out there is fire. Every year it burns up more bird habitat, yet the anti-grazing approach is to remove more livestock. If we do that, there is no fuels management on the landscape. Livestock grazing is one of our best tools to reduce fire danger," he says.

Dry cheat grass in regions where this grass has become dominant is the biggest danger because it burns so readily. Utilizing cattle to reduce fuel loads, finding ways to enable them to graze cheat grass—with use of protein supplement to facilitate grazing—could be one of our most effective ways to combat wildfires.