

# Prescribed Burning for Brush Control

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*this paper originally presented by John Denison, Colorado State Forest Service (at the time he was [Grand Junction District](#) Forester), at the "Brush Control for Landowners Workshop," sponsored by the USDA Natural Resources Conservation Service, Glenwood Springs Field Office, which was held in Newcastle, Colorado on March 12, 1997*

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CSFS works with private landowners in all aspects of woody vegetation management:

- Forest: harvesting, thinning, planting, prescribed burning
  - Objectives: grazing improvement, wildlife habitat improvement, insect & disease control, general forest health & productivity, increased water yield, wildfire hazard reduction, income.
- Brush: prescribed burning, chaining, roller chopping, dozer blading;
  - Objectives: domestic livestock grazing improvement, wildlife habitat improvement, wildfire hazard reduction.



[Prescribed fire](#) is only one tool, and it may not be the best one for your objectives.


If you are looking at prescribed fire as the most economical tool, you may be disappointed.

Advantages:

- Can do a "clean" job with little plant residue left.
- Can provide a good seedbed to replant desirable species.
- Can be economical compared to other methods.

Disadvantages:

- Who will be liable if people or property is damaged or destroyed?
- Cost can be high if: fuelbreaks are needed, deferred grazing required, or multiple attempts are needed.
- Extent and pattern of burn not easily controlled.
- Weather conditions must be just right when people & equipment are available for the burn.



### Sage burns:

1. Can be very effective because most sage varieties won't sprout back, but large scale continuous burns are difficult.
2. Biggest problem is continuity of fuel that will carry the fire. The taller the sage, the less grass understory to carry the fire. Viewing a potential burn area from the road across the canopies of the sage plants can be very misleading as to its continuity. You must get out and walk through it.
3. Grazing must frequently be deferred for 2 or 3 years to build enough grass understory to carry a sage fire.
4. Wind and/or slope are most often needed for a good clean sage burn.
5. "Window" of opportunity is just after the snow goes off, before green up. - Late fall burns can be hazardous and damage desirable plants.
6. Rabbitbrush (and greasewood) in a sage burn area can be a problem after the burn because it does sprout and can aggressively occupy a sage burn site. Treat with a herbicide.
7. Weather may be too wet, or manpower & equipment not available during the "window" thereby postponing for another year.
8. Typically, forbs will be the dominant plants after a successful sage burn. Grasses may take several years to crowd out the forbs, unless you seed after the burn.
9. Not having natural (rocky areas, riparian, sparse fuel) or man-made (roads, plowed fields) firebreaks can add significantly to costs. Dozing or plowing (and side raking) are options. Running the fire into the snow line can be an option.

### Oakbrush:

1. Often tough to get a continuous burn in oak unless wildfire danger is high.
2. Burning oakbrush is not a good idea because it sprouts back vigorously.
3. Repeated burning of oak has yet to be proven as a successful treatment.
4. Deep root plowing may be an effective but expensive option.
5. Herbicide treatment of oak may be best (cost-effective).



Costs:

1. When CSFS contracts to do a prescribed fire we take on the liability.
2. We have to prepare a detailed burn plan and stick to it. If the conditions are not as specified in the burn plan we will not begin the burn. We have to have all required burn permits (not required by a private landowner doing his/her own "Ag. burn").
3. Accomplishing a large successful burn on the first attempt is the exception rather than the rule.
4. Plan on 2 or 3 years for a CSFS conducted burn from the time of agreement signing to completion of the burn.
5. Having or creating effective fuel breaks will lower costs.
6. Costs are a function of days and number of personnel required, not # acres.
7. Small acreage burns are very expensive because they often take as much burn plan preparation and man hours as large ones.
8. Sage burns= \$25-50/acre
9. An ideal situation with a large acreage to be treated, and good natural fuel breaks with few risks may have costs of \$15-20/acre.

Alternatives that may be more cost-effective:

- Aerially applied herbicides. Timing (growth cycle) is often critical for success.
- Dozer blade or chain (2 dozers + anchor chain) and pile for winter burning. Pile burning will create a long "residence time" and sterilize soil for several years.
- Brush beating (small sage) is an option but misses the short, young plants. Tough on equipment!
- Roller chopping: large finned drum filled with water, pulled behind a dozer.
- Scarificator: anchor chain with bars welded to it.

Advantages to mechanical treatment:

1. Can do in any season (except when wet)
2. Pattern and extent can be precisely controlled
3. Little risk of catastrophic liability, i.e. escaped prescribed fire