



### Definition

Brush management is the removal, reduction, or manipulation of woody trees and shrubs. Biological brush management is accomplished primarily by goats but can include insects or other livestock.

### Purpose

The practice is used to manage unacceptable levels of brushy species (trees, shrubs and woody vines) in areas to promote desirable plant growth, facilitate management of forests, reduce erosion, increase water infiltration, and improve wildlife habitat.

### Conditions Where Practice Applies

On forests, native and naturalized pastures, wildlife lands, and other lands where trees and shrubs need to be removed to restore or create the natural or desired plant community.

### Criteria for Brush Management with Goats

#### Beginning threshold:

Canopy of brush species exceeds 25% measured at or below five feet averaged throughout the targeted area to begin.

#### Ending threshold:

All brush species have at least 80% leaf removal and some twigs possibly eaten below five feet in height throughout the treatment area at the end of July. Research has shown that defoliation after July has little effect so plan to have initial defoliation complete before August.

### Method/Implementation

The total area to be browsed should be fenced into at least 5 paddocks, if at all possible. Initiate browsing as soon as the brush is fully leafed and defoliate as described above. Move goats to the next paddock and repeat. When the initial paddock leafs out again, regardless of where the goats are in the rotation, bring them back to the initial paddock to defoliate the brush again. Continue this method to manage brush until all paddocks have brush suppressed or killed to at least the threshold described above. Killing brush may take 2 to 3 years of repeated browsing.

### Guard Animals or Protection

Most goat herds need protection from predators. A high voltage fence and a guard animal are a good idea.

## Stocking Rates

The following table should be used as a guide for stocking rates with goats for weed and brush control:

Pasture Type	% Brush Canopy	Cows	Goats	Cows + Goats
Excellent Pasture	<10%		Not eligible for NRCS financial assistance	Not eligible for NRCS financial assistance
Brushy Pasture	25%-40%	1*	9 to 11*	1 + (2 to 4)*
Brushy Eradication	>40%		8 to 12	.5 + (4 to 6/ac.)
Sustainable Browse Management	Maintain 10 - <40% brush canopy		1 to 3/ac.	.25 + (1 to 2)/ac.

\*Recommendation is based on how many acres to carry one animal unit per year. In Iowa, this is generally 1 cow for 3-5 acres. The table below provides the number of goats or cow/goat combinations per acre.

**Example:** Total acres of brush multiplied by 8-12 then divided by the number of grazing weeks between green-up and August 1st equals the initial stocking rate. This is the number of goats needed to defoliate the entire acreage in one grazing season (Generally May 1 – July 31 or about 12 weeks). Research shows that defoliation after August 1st has little effect on brush species mortality.

25 acres x 10 goats/ac. ÷ 12 weeks = 21 goats initial stocking rate. All goats are in one herd and rotate within the 5 paddocks. NOTE: It will be almost impossible to get 80% defoliation without paddocks.

## Goat Grazing Preferences

**Preferred species:** Multiflora rose, blackberry, greenbriar, honeysuckle, locust, sumac, willow, mulberry, wild grape, autumn olive, gooseberry, chicory, red clover, ragweed, lambs quarter, sericea lespedeza, crown vetch, poison ivy/oak, spotted knapweed, pigweed, oak, walnut, agrimony, leafy spurge.

**Intermediate preference:** cedar, buck brush, hickory, ironweed, spiny amaranth, curly dock, pokeweed, buttercup, white clover, thistle, bur dock, ox-eye daisy, queen anne’s lace, garlic mustard.

**Not preferred:** most grasses

**Undesirable or potentially poisonous:** horse nettle (poisonous), perilla mint, wooly croton, buffalo burr, wild cherry (okay if fresh, poisonous if wilted), Switchgrass (may cause photosensitivity), alsike clover (may cause liver damage)

## Fence

Use IA-92 Fence construction specifications for goat boundary fencing options. Interior or paddock fences range from 2 to 3 electrified poly-wires to an electrified netting fence. Voltages between 4000 and 7000 volts are recommended for goats.