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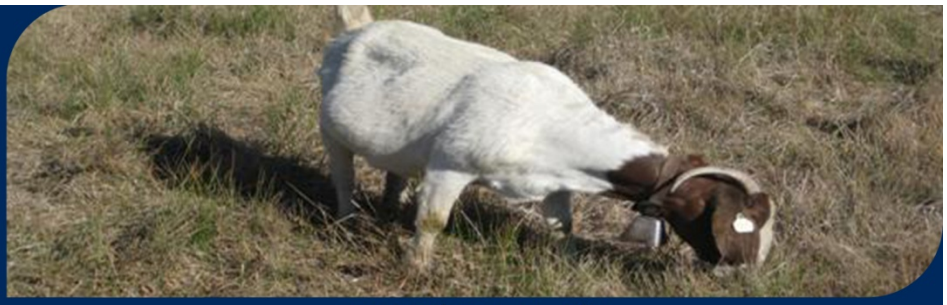

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A Well Designed Goat Grazing Plan Can Reduce Noxious Weeds

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Goat grazing can be an effective tool in reducing noxious weeds, if the right grazing plan is designed and implemented. Areas where herbicides are not an option or limited, goat grazing can reduce noxious weeds by reducing seed production and plant growth. In 2007 a small scale Utah State University sponsored weed control goat grazing/herbicide comparison study showed that goat grazing was a viable weed control option. The study further showed that herding grazing goats was not as effective as penning them to control noxious weeds. According to Williams (2000) grazing for noxious weed control requires a multi-year commitment. Each time goats graze the plant and the top growth is removed, it forces the root to use its reserve for re-growth, thus weakening the health of the plant. This publication will provide an overview of what is required in designing and implementing a successful goat grazing noxious weed control program.

Items to Consider

In determining if goat grazing can be effective in reducing a noxious weed infestation, a few items need to be considered. These items are:

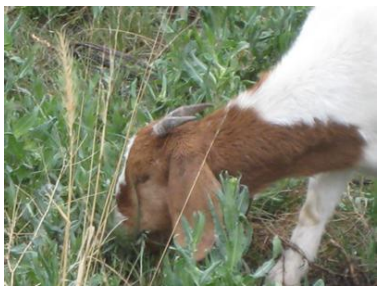
- Life cycle of the plant (annual, biennial or perennial)
- Seed type
- Palatability of the plant
- Stage of growth of when the weed is to be grazed
- Type of grazing plan (single, repeated or continuous)
- Plant response by being grazed

Noxious Weeds to Consider for Grazing

Proper identification of noxious weeds is important in designing a successful weed control grazing plan. Your local county Extension agent or weed supervisor can help in identifying noxious weeds. Also, in addition to their help there are several good weed identification books available to you, such as, "Weeds of the West." This publication can be purchased from your local county Extension office or online. After you have identified the problem weeds, review the list (Smith, Davison and Wilson, 2006) below to determine if grazing them with goats can be an effective weed control option.

Noxious Weeds Suitable for Goat Grazing

Canada thistle (*Cirsium arvense)*
Common tansy (*Tanacetum vulgare*)
Dalmatian toadflax (*Linaria genistifolia ss. dalmatica)*
Diffuse knapweed (*Centaurea diffusa*)
Dyers woad (*Isatis tinctoria*)
Gorse (*Ulex europaeus*)
Kochia (*Kochia scoparia*)
Leafy spurge (*Euphorbia esula*)
Medusahead (*Taeniatherum caput-medusa*)
Musk thistle (*Carduus nutans*)
Perennial pepperweed (*Lepidium latifolium*)
Purple starthistle (*Centaurea calcitrapa*)
Quackgrass (*Elytrigia repens*)
Russian knapweed (*Acroptilon repens*)



Goat grazing Dyers woad.

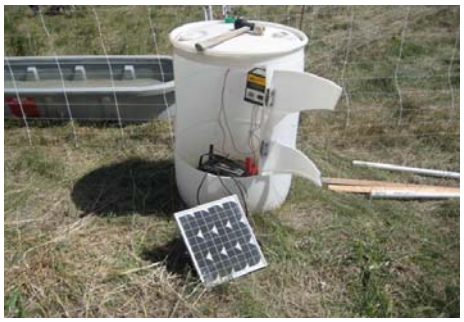
Scotch broom (*Cytisus scoparius*)
Scotch thistle (*Onopardum acanthium*)
Spotted knapweed (*Centaurea maculosa*)
Yellow starthistle (*Centaurea solstitialis*)
(Smith et al, 2006)

Grazing Management Plan

In order to be successful in reducing noxious weeds, a well organized grazing management plan is necessary for goats to be effective tools in the fight against weeds. This plan **must** include the following:

- Area of noxious weeds identified to be grazed
- Number of times during the growing season the area is going to be grazed
- Number of years the grazing treatment needs to conducted
- Determine the correct stocking rate for the area to ensure that desirable plants are not damaged
- Type of livestock watering and fencing systems to be used
- Determine what type of monitoring system will be implemented

Before an effective weed management grazing plan can be implemented, the area and type of weeds need to be identified and mapped out. By mapping out the area the manager can design the type of grazing plan that will be implemented during the growing season. It is also important to know the life cycle of the weed (annual, biennial or perennial) in order to decide on the type of grazing treatment. **In general most weeds need to be grazed before the plants bloom and produce seeds**. In previous studies conducted at Utah State University (Banks, 2007, 2012) repeated grazing during the growing season showed to be the most effective method in reducing the number of weeds in a particular area. In those same studies the use of a portable electric net fence proved to be effective in confining goats to an area to be grazed. When using the electric net fence, goats must become accustomed to this fencing system for it to work.



Solar charger and battery unit.

Electric net fence used for goat confinement.

By confining goats in a small area they will graze the target noxious weed first and then consume less preferred plants last. It is extremely important that goats be monitored in the confined area, so they will only eat the target weeds. If they are left too long in an area they will consume all of the forage available including beneficial non-target plants. The following table and explanation (Missouri NRCS, 2005) should be used as a guide for stocking rates when goats are used to control noxious weeds.

Pasture Type:	**% Brush Canopy:**	**Cows:**	**Goats:**
Excellent Pasture	< 10%	1	6 to 8
Brushy Pasture	10 – 40%	1	9 to 11
Brush Eradication	>40%		8 to 12/ac.
Sustainable Browse Management	Maintaining 10 - <40% Brush canopy		1 to 3/ac.

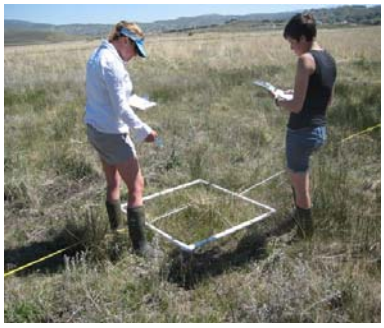
Source: Prescribed Grazing with Goats (NRCS Missouri), 2005.

The stocking rates given for excellent pasture and brushy pasture are **not on a per acre basis but a comparison to cattle**. With excellent pasture you could stock six to eight goats on the same amount of land it takes to run one cow. On brushy pasture you could run nine to eleven goats on the same amount of land required to run one cow. The stocking rates for brush eradication is on a per acre basis to eradicate brush and covert to pasture in a short (2-3 year) time period. The stocking rate given for

sustainable browse management is on a per acre basis to utilize and manage woody species without completely eliminating it or degrading desirable species.

Monitoring

Monitoring the results is probably the most important aspect of a successful weed eradication goat grazing program. Develop a system that records and measures the results over time in order to determine if your weed eradication objectives have been met. This plan should include the number of noxious weeds present and the condition of the desirable forage/browse available. It should be recorded on a yearly basis before and after the goat grazing has been implemented. Over time these records should help determine the overall trend of the target area being grazed.



3' x 3' monitoring hoop used to count weeds along a 100' measuring tape.

Conclusion

Based upon the literature review and previous university studies, goat grazing can be an effective tool in reducing the spread of noxious weeds. Goat grazing requires a long term commitment and can be successful if a few simple steps are followed:

- Proper noxious weed identification
- Know the life cycle of the noxious weed
- Determine if the noxious weed is suitable for goat grazing
- Design and implement an effective grazing plan
- Use the proper grazing system equipment
- Determine the proper stocking rate for the area
- Monitor and record the results of the grazing program
- Be patient and remember this is a long term commitment

References

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