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# Factors affecting leafy spurge preference by livestock

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Consumption of leafy spurge by ruminants appears to be primarily the result of post-ingestive consequences received by the animal. We hypothesize that phyto-chemicals in the plant cause varying degrees of gastrointestinal distress in animals and thus regulate consumption.

Post-ingestive consequences vary according to the level of aversive phyto-chemicals and the ability of the animal to denature these phyto-chemicals. Management of leafy spurge using small ruminants will be most effective if these animals can be induced to show a preference for leafy spurge relative to other plants in the community. Studies using sheep and goats have been conducted at the U.S. Sheep Experiment Station since 1989 to determine factors that regulate post-ingestive consequences and thus preference for leafy spurge. These studies have involved small pasture grazing trials, pen feeding trials, and aversion studies. The goal of our research is to discover ways to manipulate either the grazing animal or the leafy spurge plant and cause leafy spurge to become a preferred forage. Plant factors that effect preference for leafy spurge include location and nitrogen fertilization. Sheep preferred leafy spurge in North Dakota compared to Idaho and fertilized compared to unfertilized. Animal factors that affect preference include species, physiological condition and experience. Goats consume spurge more readily than sheep demonstrating a positive relative preference while sheep although they will consume leafy spurge generally show a relative avoidance. Lactating compared to dry ewes consume more spurge. We hypothesize this is caused by higher levels of prolactin in lactating ewes, which may partially relieve the aversive response. Finally, experienced sheep show a higher preference for spurge than native sheep.