

Growing White Clover for Forage

Area of Adaption

White clover (*Trifolium repens*) is found throughout the temperate regions of the world and is limited only by extreme cold or heat or by drought. Optimum performance of white clover as a pasture plant occurs in mild, humid climates. In the United States, white clover is found in the humid eastern half of the country and in the Pacific Northwest. It is also utilized in irrigated pastures throughout the intermountain region.

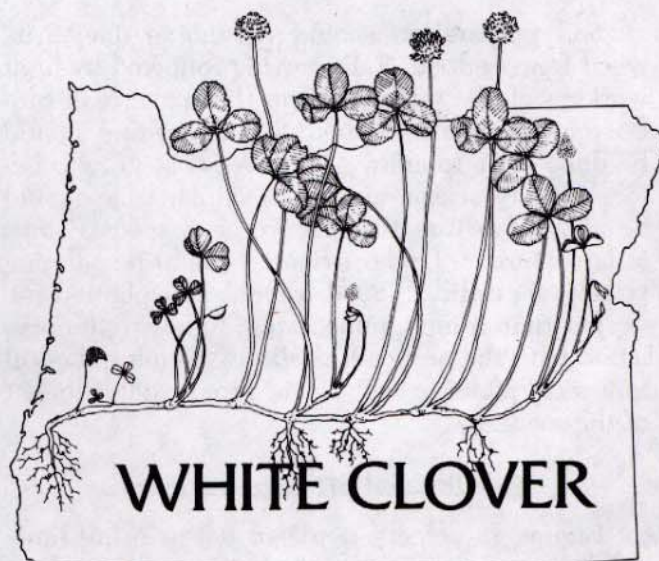
White clover can be used on wet areas of soils with low pH, but does best in well-drained silt loam and clay soils of pH 6.0 to 7.0. It does not tolerate saline or highly alkaline soils.

Primary Use

White clover is *the most important pasture legume* in temperate region pastures. It is almost always planted in combination with grasses for beef, sheep, or horse pastures.

Like other legumes, white clover improves the feeding value of a grass pasture. This is the result of its high voluntary intake, digestibility, and crude protein levels.

White clover is used widely in renovation of permanent pastures lacking legumes. White clover-grass mixtures also may be used for high-quality hay or silage.



Varieties

Ladino, New Zealand, and "common" white clover are the most frequently used varieties. Ladino is also known as giant or Italian white clover, as it usually grows to a height of 8 to 12 inches compared to 4 to 6 inches for common white clover. New Zealand white clover contains a greater quantity of cyanogenetic glucoside than Ladino. Because this is an effective slug repellent, it is preferred in areas where slug damage is

Use	Precipitation	White clover seeding rate	Companion species	Companion species seeding rate
	<i>Inches</i>	<i>Lbs/A</i>		<i>Lbs/A</i>
Pasture	60	2-3	Orchardgrass	10-12
		2-3	Tall fescue	15
	40-60 or irrigated	2-3	Perennial ryegrass	10-12
		2-3	Orchardgrass	10-12
	2-3	Tall fescue	15	
Wetlands		2-3	Tall fescue	15
Short-rotation pasture	40-60 or irrigated	2-3	Hybrid ryegrass and red clover	20
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common. The glucoside is not present in sufficient quantity to affect most livestock, but it may cause photosensitization in horses. Common white clovers are small, prostrate clovers with good winter hardiness, but they are not usually as productive as New Zealand or Ladino white clover.

Establishment

Soil preparation should provide a fine, firm, weed-free seedbed. Fall plowing followed by light working of the surface soil in the spring will produce an excellent seedbed. Spring seeding should be done early to allow 4 to 6 weeks of growth before the dry season arrives. A similar time should be allowed before the first freeze if seed is sown in late summer. Under irrigated conditions, timing is not as critical. Seed should be planted no deeper than $\frac{1}{2}$ inch immediately following inoculation with the proper *Rhizobium*. Firming the soil following planting will aid in rapid establishment of the seedlings.

Fertility and pH Requirements

Liming to achieve a pH of 6.0 or using lime-pelleted seed is recommended. Adequate levels of potassium, phosphorus, and sulfur should be available, as white clover requires a high level of fertility for high production. Properly inoculated and nodulated white clover-grass pastures will not require the addition of nitrogen. Early spring application of small amounts of nitrogen (30-40 lbs.) will stimulate early growth of grass but will favor the grass over the legume. For specific fertilizer recommendations based on soil test data, consult OSU Fertilizer Guides 1, 21, and 58.

Management

The most difficult problem in managing white clover-grass pastures is maintaining the clover. Frequent defoliation during the period of maximum grass growth (early spring) encourages white clover by minimizing grass competition. Mixed pastures should be used before the grass reaches its maximum competition. Clipping or harvesting surplus forage in understocked pastures will help maintain the clover and control the grass and weeds.

If pastures are grazed continuously, the height of forage should be maintained at 2 to 6 inches, depending on the grass species. Fall management should allow adequate regrowth for rooting new stolons before the first freeze. Disappearance of white clover from pastures can be remedied by pasture renovation.

Bloat is often a problem for animals on pastures that contain a large proportion of white clover. Methods of controlling bloat in mixed clover-grass pastures include supplementing pastures with grass hay and intensive strip grazing. Bloat-preventative materials, which prevent rumen foam production, may be added to drinking water, applied as a top dressing on grain supplements, or added to salt-molasses blocks. The effectiveness of these methods depends upon animals obtaining a regular supply of bloat preventative.

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