

Seed inoculation

White clover can only fix nitrogen when the proper Rhizobium bacteria are present in the soil. To ensure nitrogen fixation, white clover seed should be inoculated with the right kind of Rhizobia prior to planting. Barenbrug offers pre-inoculated and coated Alice white clover seed that is ready to plant.



White clover and bloat

If a ruminant eats too much white clover, there is a chance of bloat. Bloat is caused by the production of both gas and foam in the rumen of the ruminant, caused by a surplus of protein. In order to prevent bloat, a maximum of 40 percent white clover in a pasture should be respected. If the animals are fed other non-bloating forages (e.g., hay, corn, cornsilage) besides the clover, the risk of bloat significantly decreases. Bloat typically occurs when animals enter a clover-rich field (more than 50 percent) with an empty stomach. With the right management and feeding practices, the risk of bloat can be greatly reduced.

Management

Clover likes sunlight and therefore stands with clover should not grow too tall. This makes an excellent tool to control the percentage of clover. If the clover becomes too dominant, harvesting the field should be delayed. If the clover is struggling, more frequent harvests (grazings) should be considered.



Frequently Asked Questions

Q. *Can white clover be frost-seeded?*

A. Yes, frost-seeding is an inexpensive way to introduce white clover in a field. Results will vary depending on weather conditions.

Q. *I have small leaved white clover in my fields but see no nitrogen effect on the grass.*

A. Volunteer small leaved white clover fixes much less nitrogen than improved large leaved white clovers like Alice.

Q. *I'm planting white clover in an old alfalfa field. Do I need to inoculate my white clover seed?*

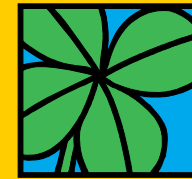
A. Yes, each legume species requires specific Rhizobium bacteria. If no or very little white clover is present in the field, inoculation is recommended.

Q. *I have a nice stand of grass and clover. Should I add commercial fertilizer?*

A. Clover starts fixing nitrogen in the late spring, early summer. Nitrogen fertilizer applied in the spring will help increase production.



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ALICE

The large leaved
and persistent white clover



- High nitrogen fixation
- Winterhardy and persistent
- Large leaved
- Very palatable
- Tall, vigorous growth





Alice white clover

Alice white clover (*Trifolium repens*) is a perennial legume which spreads through the sward with branching stolons. As with other legumes, such as alfalfa and red clover, white clover has the ability to produce its own nitrogen through a symbiotic process with Rhizobium bacteria in the root nodules. White clover is mainly used in grazing pastures for its high nutritive value (both protein and minerals). Traditionally, there are two types of white clover: the small leafed and highly persistent varieties and the large leafed and less persistent varieties. Alice white clover is the first variety that successfully combines production (large leaves) and persistence.

Nitrogen fixation

Like other legumes, Alice white clover has the ability to fix nitrogen from the air. In fact, Rhizobia that live on the roots of white clover fix the nitrogen for the plants. This nitrogen becomes available to the clover

plants and to the grass that grows with the white clover. Alice shows remarkable nitrogen fixing capacity as is demonstrated in many cases.

An example is the picture above of a pasture in the Midwest. The owner of the field planted the grass in the fall of 1997. In February of 1998, he frost-seeded the Alice white clover with a broadcaster. However, while planting he did not cover the 30 feet he was aiming for. He planted only 20 feet wide, leaving strips both with and without the Alice white clover.

As is demonstrated clearly, the grass benefits from the Nitrogen being fixed *and* released by the Alice white clover. It is estimated that the Alice white clover fixes as much as 150 pounds of nitrogen per acre. Another remarkable thing was noticed by the farmer: the strips without the Alice white clover do have some spots with some volunteer white clover. In these spots, the grass does not show increased production.

This proves the point that improved varieties like Alice fix much more Nitrogen than traditional white clovers. The picture also shows that cows really prefer the grass with the white clover, giving new meaning to the word “stripgrazing.”

Site selection and planting

White clover does well on most soil types, however, the pH of the soil is rather important. The pH should be at least 6.0, and the optimum is 7.0. If the pH is too low, high-calcium lime should be applied. Adequate levels of calcium, phosphorus and potash are very important.

Alice white clover is a perfect companion with most cool season perennials like perennial ryegrass, orchardgrass and tall fescue. For combinations with Italian and annual ryegrass, red clover is a better choice.

Alice white clover can be planted in the fall, at least 8 weeks before killing frosts. A better way of planting in the Northern regions is frost-seeding in the early spring. When planted with grass, 2 to 3 pounds per acre is sufficient. For frost-seeding, 4 pounds per acre is recommended.

THE ECONOMICS OF PLANTING ALICE WHITE CLOVER

COST

Seed (3 lbs/acre)	\$11.50/acre
Planting cost	\$ 6.00/acre
TOTAL	\$17.50/acre

RETURN

After one year 150 lbs of nitrogen at . .	\$ 0.12/lb
After two years 300 lbs of nitrogen at . .	\$ 0.06/lb
After three years 450 lbs of nitrogen at .	\$ 0.04/lb

CONCLUSION:

With planting Alice white clover you “buy” nitrogen at *less than 5 cents per pound!*