

SYNERGY[®]

WHITE CLOVER

BREEDER

ProSeeds Marketing, Inc.

DESCRIPTION

Synergy is a leguminous perennial white clover specifically bred for improved winter forage activity and greater persistence under hard rotational grazing. Synergy is a medium leaf, semi-erect, medium late flowering white clover. Leaves are non-hairy and frequently marked with a white "V." Synergy spreads by medium to thick (2.47mm) stolons (runners) and forms shallow roots at nodes. Synergy is distinguishable from other white clover varieties (Regal, Challenge, LeBons, Aran) by its year round good growth under hard rotational grazing.

APPLICATION

Intensive, rotational and continual grazing systems; pasture and erosion control and soil stabilization. Compatible in mixture with forage grasses (perennial, intermediate ryegrass, tall fescue, orchardgrass, Kentucky bluegrass and selected non-aggressive warm-season grasses). Best utilized in areas where legumes such as alfalfa and red clover are not properly adapted. Close continuous grazing allows light and air penetration to reduce the likelihood of leaf and root diseases which attack white clover.

WHITE CLOVER TYPES

Depending upon the continent and forage user, white clovers are categorized into specific groups. This grouping may be based on leaf size, stolon diameter, stolon branching, internode length (long internodes are associated with less leaf production per unit of stolon), rooting nodes (nodal

roots favor survival under stress) petiole orientation (upright or reclining - reclining petioles permit leaves to contact soil, which favors damage by pathogens), reseeding ability, persistence, tolerance to close continuous grazing and many other factors. In North America white clovers are traditionally categorized based on leaf size. Large leafed nonreseeding types are called ladino white clover. Intermediate white clover has medium sized leaves, is early flowering and is more likely to reseed even under close grazing. Small types are generally referred to as wild white clover and persist selectively where close continuous grazing is practiced.

PERFORMANCE

Synergy has been tested in selected trials in North America. Preliminary results indicate that under optimal soil and environmental conditions (well drained, sandy loam soils) dry matter forage yields of improved alfalfa and red clover are greater than white clover. However, for holistic low impact forage systems, under less than optimal conditions, managed under close continuous grazing Synergy is the newest and best option among white clover varieties.

SEEDING

Dates: Fall (September-October) seed when soil temperatures are warm in the south. Spring seed in March-April in the north. Established grass pastures can be overseeded in October-November or February-March.

Soil preparation: Prepare firm seed bed, free of clods, sticks and vegetative debris. Seed should be in contact with the soil. Consider rolling soil following harrow to help retain moisture and induce soil structure.

Seed inoculation: Most legumes have a symbiotic (mutually beneficial) relationship with bacteria in the genus Rhizobium. The bacteria infect the roots of legume plants from which they obtain food and the bacteria obtain N from soil and "fix" it in a form usable by the plants. The N is accumulated

TURF CHARACTERISTICS

Growth Habit	Estab. Rate days	Anerobic Soil Tol.	pH Range	Min. Rain-fall	Seed-ling Rate	Dyr Matter Yield Tonners	N. Req.	Regrowth	Primary Utilization	Veg/Reprod Tiller Rate	CP% +	NDF ++	ADF +++	TDN +++	Cyanide Factors
Perenn. Stoloni-ferous	Slow 7-10	Very Good	6.5-7.5	>24 inches	4-5 in grass mix; 2-3 lbs. drilled	Fair Good	Low 0 lbs/A	Very Good	1. Intensive grazing 2. Pasture 3. Soil Stab- ilization	Very High	23-40	38-47	28-32	63-73	No

*LHC=low height of cut, ET=evapotranspiration, N=nitrogen *per 1,000 lb; rates may increase or decrease based on location, soil type, irrigation practices, desired turf quality, humidity & other abiotic and biotic factors.*

Relative Leaf Size and Growth Habit of White Clover			
Variety	Type	Relative Leaf Size	
Aran	Ladino	180%	Upright
LeBons	Ladino	170%	Upright
Kopu	Ladino	160%	Upright
Challenge	Medium	140%	Semi-erect
Synergy	Medium	130%	Semi-erect
Pitau	Medium	120%	Prostrate
Huia	Medium	100%	Prostrate
Tahora	Small	90%	Prostrate
Prestige	Small	80%	Prostrate

in small appendages called “nodules” which form on the legume roots. Inoculation is the practice of adding rhizobia to seed or soil before planting. Rhizobia are applied to seed simply because this is an easy way to place the needed nodular bacteria in the zone where the young seedlings will develop. The inoculation group best for white clover is *Rhizobium trifolii*.

Rate: Drill 2-3 pounds per acre (2.4-3.6 kilos per hectare) or 4-5 pounds per acre broadcast (4.8-6 kilos per hectare) with orchardgrass, tall fescue, perennial ryegrass, intermediate ryegrass and Kentucky bluegrass. Soils should be well drained with good fertility for optimal growth. However, white clover tolerates poorly drained soils better than most leguminous species. Seed count of Synergy is 800,000 seeds per pound and is dependent on the year, location and production practices during seed harvest.

Depth: Sow at 1/4 inch (6.25 mm) drill seeded or broadcast, harrow and roll.

CULTURAL PRACTICES

pH: White clover is tolerant of slightly acidic soils. However, soil in the range of 6.5-7.5 is best. Soil should be limed if pH is below 6. Many sources of lime are available including Dolomitic lime {CaMg (CO₃)}, which contains more Mg than calcitic lime (CaCO₃), is recommended if the Mg level of the soil is low. Other sources include gypsum or calcium sulfate CaSO₄2H₂O.

NPK requirements: White clover is very responsive to potassium fertility and deficient soils will reduce dry matter forage yield and encourage white clover decline.

Recommend single application of murate of potash or economical potassium source. Recommend application of triple-superphosphate at 100-200 lbs. per acre (120-240 kilos per hectare). In mixture with grasses such as tall fescue, perennial ryegrass, orchardgrass, the absence of available P and K will contribute to white clover decline in forage production systems.

Grazing management: Grass competition from undergrazing is one of the major problems in maintaining productive stands of white clover. Grass may be planted in wide rows and clover broadcast to reduce competition. Grazing should be sufficient to maintain forage height at 1 to 4 inches, preventing shading of clover by the grass. Excessive shading of seedlings and mature plants will significantly reduce white clover population in forage systems program.

Pests: A number of leaf and root diseases attack white clover. Foliar disease such as pepper spot, *Leptosphaerulina trifolii*; sooty blotch, *Cymadothea trifolii*; *Cercospora* leaf spot, *Cercospora zebrina*, *Curvularia trifolii*; *Stagonosora* spp.; *Stemphylium* sp.; and *Uromyces* sp. Close grazing allows light and air penetration to reduce the likelihood of these problems. Stolon and root rots often are not as conspicuous as foliar diseases, but they frequently are more destructive. Fungi frequently associated with diseased stolons and roots include species of *Fusarium*, *Rhizoctonia*, *Colletotrichum*, *Sclerotinia*, and *Sclerotium*. In general, grazing management is the best control measure available for stolon and root disease. White clover is susceptible to viral disease. Most of the viruses that infect white clover are prevalent, widespread and dependent on an insect vector for spreading. Aphids are vectors of most, but white clover mosaic virus does not require an insect vector; mowers and other machinery spread this virus. Host resistance appears to be the only practical control measure. Various insect pests attack white clover including clover root curculio, root borer, cutworms and various webworms. No practical control is available. Slugs may be severe in wet, humid locations and of little importance in drier areas.

Weed Control: (From Pacific Northwest Weed Control Handbook, 2005.) On sites where establishment is critical and prior to harvest or grazing by domestic animal, pasture herbicides are generally impractical and expensive. Caution and care should be taken to avoid drift onto adjoining cropland. Post-emergent weedy grass control: Pronamide (Kerb), Sethoxydim (Poast). Post-emergent broadleaf annuals and perennials: 2,4DB (Butyrac 200). Pre-emergent perennial and annual grasses: EPTA (Eptam). Always follow the label and manufacturer’s recommendations.

Any and all reference to pesticides, herbicides and fungicides, whether generic or named products, is for general informational purposes only.

Text reference is not intended as an endorsement, nor does omission imply criticism.

Always read and follow labeled instructions.

