



- Insect resistance
- Deter wildlife that carry ticks
- Soil stabilization
- Deer resistance
- Easy germination
- Erosion control
- Biomass integration
- Full sun & shade
- Weed resistance
- Drought tolerance
- Cold tolerance
- Low maintenance
- No mowing needed
- Disease resistance
- Wildlife deterrence
- Dust control
- Fire prevention
- Salt tolerance
- Traffic resistance

FLIGHTTURF® - THE ULTIMATE VINEYARD FLOOR

Save money on herbicides that pollute your vineyard and toxify your grapes. Your customers will appreciate knowing it's not in the wine you produce. Go organic.

Spending money and energy on maintaining your vineyard floor – discing, rototilling, alternative planting – to just have to repeat the process every year?

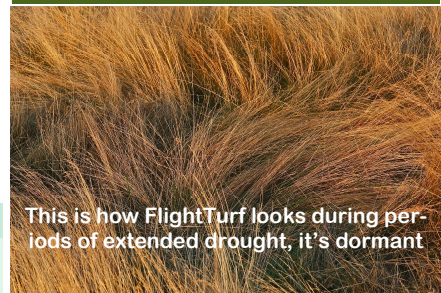
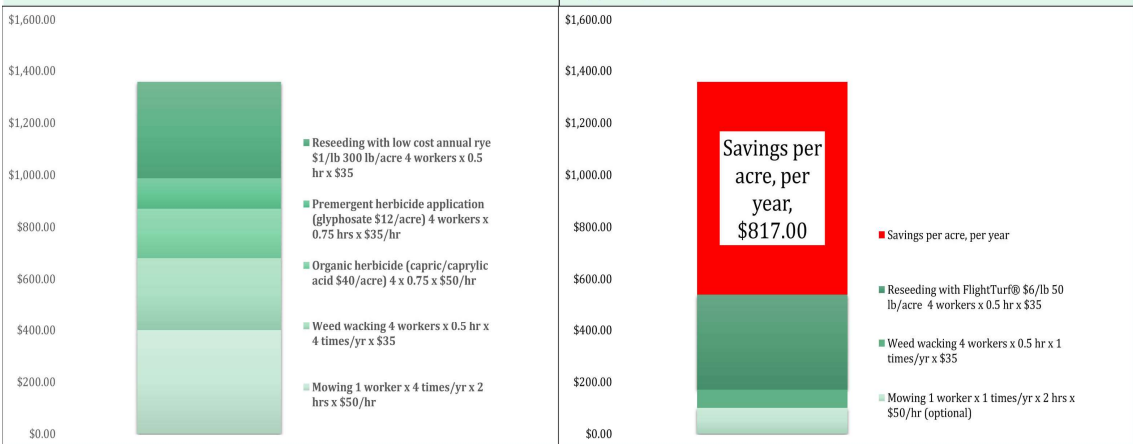
Imagine your vineyard floor – pristine like a golf course fairway – without the maintenance – without the water – without fertilizing – without mowing – sustainable. Return to Nature with Native Return® FlightTurf®.

Our native grasses are specifically formulated with a patented seed mix to provide all the benefits with only positive results on your vineyard – with one tenth of the maintenance.

We at Native Return® provide the expertise to guide you through the conversion process using your own labor and resources. Next time, instead of doing maintenance on your vineyard floor, DO FlightTurf® AND MAKE IT THE LAST TIME!

Comparison of existing mature vineyard floor maintenance expense where rye grass or FlightTurf® is already established

Annual vineyard floor maintenance expense for 1 acre, as rye grass		Annual vineyard floor maintenance expense for 1 acre, as FlightTurf®	
Category	Typical expense	Category	FlightTurf related expense
Mowing 1 worker x 4 times/yr x 2 hrs x \$50/hr	\$400.00	Mowing 1 worker x 1 times/yr x 2 hrs x \$50/hr (optional)	\$100.00
Weed wacking 4 workers x 0.5 hr x 4 times/yr x \$35	\$280.00	Weed wacking 4 workers x 0.5 hr x 1 times/yr x \$35	\$70.00
Organic herbicide (capric/caprylic acid \$40/acre) 4 x 0.75 x \$50/hr	\$190.00	Organic herbicide not required	
Preemergent herbicide application (glyphosate \$12/acre) 4 workers x 0.75 hrs x \$35/hr	\$117.00	Preemergent herbicide application not required	
Reseeding with low cost annual rye \$1/lb 300 lb/acre 4 workers x 0.5 hr x \$35	\$370.00	Reseeding with FlightTurf® \$6/lb 50 lb/acre 4 workers x 0.5 hr x \$35	\$370.00
		Savings per acre, per year	\$817.00



This is how FlightTurf looks during periods of extended drought, it's dormant



FLIGHTTURF® CONVERSION SEEDING SPECIFICATION

Seed supplier, Native Return®, LLC can answer specific questions.

DESCRIPTION

1.1 This is a general specification for the replacement of existing vegetation with FlightTurf®. It should be used as a guideline and adapted to the specific local needs of each project, as climate conditions and soil types vary substantially.

1.2 SOIL TEST. In all cases, a soil test should be performed prior to installation. Refer to the State University Agricultural Extension Service for correct soil testing procedures. The soil test will determine what soil amendments are required. Direct specific questions to Native Return®, LLC @ 267-872-9068.

MATERIALS

2.1 SEED Seed shall be FlightTurf® blend from Native Return®, LLC.

Seeding should be performed during the period between August 15th and October 20th, the earlier the better. Spring seeding is also possible as a secondary option, and should be performed between March 15th and May 30th, the earlier the better. It is possible to seed FlightTurf® outside of these time frames, however there is an increased chance that re-seeding and additional weed control will be necessary for a successful establishment due to adverse conditions. Direct specific questions to Native Return®, LLC @ 267-872-9068.

Seed shall be applied at the rate of 300 lbs. per acre.

2.2 LIME. FlightTurf® performs best in soils with a pH range of 5.5 to 6.4. If tested soil pH is below 5.0, lime should be applied at appropriate amounts to raise pH to within the range. If soil pH is higher than this range, contact seed supplier.

Lime shall be ground limestone containing not less than 85% of total carbonates, and shall be ground to such fineness that 90% will pass through a No. 20 mesh sieve and 50% will pass through a No. 100 mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provisions on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime shall contain at least 10% of magnesium oxide. All liming materials shall conform to the requirements of ASTM C 602.

2.3 FERTILIZER. Fertilizer shall be standard commercial fertilizer supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified herein. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizer may be supplied in one of the following forms:

- a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;
- b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or
- c. A granular or pellet form suitable for application by blower equipment.

The composition and rate of fertilizer should be determined by the soil test.

In the event a soil test is not performed, a 10-20-20 commercial fertilizer with a minimum of 25% slow release nitrogen and shall be spread at the rate of 5 lbs per 1000 square feet.

2.4 MULCH. In the conversion process, existing dead plant material ordinarily serves as a mulch and soil stabilizer. If the area to be seeded has significant bare spots, a 100% wood fiber mulch shall be used at the rate of 1500 lbs. per acre, with tackifier added at manufacturers recommended proportion.

2.5 SOIL FOR REPAIRS. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the Engineer before being placed.

CONSTRUCTION METHODS

3.1 ADVANCE PREPARATION AND CLEANUP. Mow, rake, and/or burn the existing vegetation to the ground in late fall or early spring. Cultivate to a depth of four to five inches every two to three weeks from spring through late summer. Before planting, make sure all the existing weeds have been killed. Plant in fall between August 15 and November 15.

3.2 DRY APPLICATION METHOD (SLIT SEEDING). The site shall be seeded at the rate specified in paragraph 2.1, at 1/8 inch to 1/4 inch depth, using a mechanical slit seeder, such as a Brillion or approved equal. The unit shall be such that it creates seed slits with less than 4" centers, with discs on a suspension allowing each disc to move independently over uneven surfaces. Two cross patterns shall be done for complete coverage, seeding one half the desired rate in each pattern. All areas around ground obstructions shall be hand roughed and hand seeded.

After seeding is complete, any soil amendment required (as determined by soil test), should be broadcast over the area. All soil amendments shall be applied in two cross patterns for best coverage.

3.4 MAINTENANCE OF SEEDED AREAS. FlightTurf® systems can take 3 years to reach maturity. If possible, it may be advantageous to include years 1 and 2, or years 1 to 3 in the maintenance contract to ensure adequate steps are taken to complete the installation, and that funding is available for weed treatment or re-seeding.

Replace unsatisfactory seeded areas for a period of six months from the date of rendition of the Certificate of Final Completion. Reseed or treat for weeds, all areas, at no additional cost to the client, that are bare or where exist more than 3% coverage weeds and/or grasses exceeding 7 inches when unmowed (which are not FlightTurf®). Consult seed supplier for direction on appropriate weed treatment practice.

The Contractor shall protect seeded areas against traffic or other use by warning signs or barricades, as approved by the Engineer. Surfaces gullied or otherwise damaged following seeding shall be repaired by re-grading and re-seeding as directed. The Contractor shall mow, apply chemical treatments, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work. The FlightTurf® stand shall be considered adequate when bare spots are 6 square inches or less, randomly dispersed, and do not exceed 3% of the area seeded.

When the application method outlined above is used for work done out of season, it will be required that the Contractor establish a good stand of FlightTurf® of uniform color and density to the satisfaction of the Engineer. If at the time when the contract has been otherwise completed it is not possible to make an adequate determination of the color, density, and uniformity of such stand of grass, payment for the unaccepted portions of the areas seeded out of season will be withheld until such time as these requirements have been met.

FlightTurf® is a fine bladed, low growing grass. After installation, the area should be inspected monthly for percent coverage of this type of vegetation, whether bare areas persist, and if there are weeds. Refer to "Maintenance Guidelines for Immature FlightTurf® Installations" for more detailed maintenance procedures (attached at end of specification). Communication with seed supplier can help ensure that problems are dealt with properly, without damage to FlightTurf®. Generally, the following techniques can be followed to remedy common problems developing after seeding:

A) FLIGHTTURF HAS SIGNIFICANT BARE AREAS: Repair bare spots and thin areas using a "no till" turfgrass slit seeder, which will cut through existing thatch layer and not excessively disturb the soil. The machine should have discs with less than 4 inch spacing on a suspension allowing each disc to move independently over uneven surfaces, or a design approved by seed supplier. Small bare areas can be seeded by raking, hand broadcasting seed and firming the soil. Reseed at 5 lbs. / 1000 square feet. Apply 10-20-20 ratio commercial fertilizer (with 50% slow release N) to deliver ½ lb. Nitrogen / 1000 square feet.

B) FLIGHTTURF HAS COVERAGE THROUGHOUT, YET REMAINS THIN: Maintain FlightTurf® at 4 inches (height from ground) by mowing when the grass reaches 6 inches. Apply 10-20-20 ratio commercial fertilizer (with 50% slow release N) to deliver ½ lb. Nitrogen / 1000 square feet. Repeat mowing until FlightTurf® has filled in. If this is not effective, re-seed as in procedure A.

C) WEEDS ARE PRESENT: Seed supplier should be contacted for guidance a mowing regiment and/or reseeding is appropriate for controlling weeds, depending on type and percent cover.



Maintenance Guidelines for Immature FlightTurf® Installations

FlightTurf® will achieve its two-part goal of reduced mows and wildlife reduction once established as a mature, weed-free mono-stand. Frequent inspections of FlightTurf® installations, especially during the first 2-3 years, are recommended in order to achieve this goal. Weeds can be controlled through both mowing and reseeding, following the advice of a qualified FlightTurf® specialist*. Inspections and weed control diminish after the FlightTurf® stand matures.

Avoid operating heavy equipment on wet ground, as it can cause rutting.

January through February

- Avoid vehicular traffic on frost-covered turf, as injury can occur.
- Maintain mowers. Blades should be sharpened to avoid turf injury.

March through April

- Perform soil test per University Agriculture Extension Service or equivalent Soil Lab instructions. Soil type, pH, and nutrient levels will be useful for determining future liming or fertilization needs of the area.
- Inspect for bare spots and reseed as necessary using a “no till” turfgrass slit seeder, which will cut through existing thatch layer and not excessively disturb the soil. The machine should have 2” spaced discs on a suspension allowing each disc to move independently over uneven surfaces. Small bare areas can be seeded by raking, hand broadcasting seed, and firming the soil. Reseed FlightTurf® at 5 lb per 1000 sq ft. Apply fertilizer @ ½ lb Nitrogen per 1000 square feet (slow release N).
- If FlightTurf® is present throughout but thin, the following mowing/feeding program can be followed: during spring maintain FlightTurf® at 4 inches (height from ground) by mowing when the grass reaches 6 inches. Apply fertilizer @ ½ lb Nitrogen per 1000 square feet (slow release N). This technique promotes rapid tillering and lateral spread, which will fill in bare areas. Continue mowing through seed stalk production in June. It is recommended to time fertilizer applications immediately prior to forecasted rain.
- Inspect for annual and perennial weeds and if necessary control with suggested mowings and reseeding, per recommendations of a qualified FlightTurf® specialist*.

May through June

- Mow FlightTurf® to a 4 inch height (from the ground) once or twice during seed stalk production, preferably with a flail type mower that mulches the clippings. Two mowings will lessen the build-up of thatch. Care should be taken to cut on cooler, cloudy dry days.
- Inspect for annual and perennial weeds and if necessary control with mowings and reseeding per recommendations of a qualified FlightTurf® specialist*.

July through August

- Inspect for annual and perennial weeds and control per recommendations of a qualified FlightTurf® specialist.
- Do not mow, if avoidable. If unavoidable, mow to a 5 inch height (from the ground) on a cool, cloudy dry day.

September through mid-October

- Inspect for bare spots and reseed as necessary using a turfgrass slit seeder, which will cut through existing thatch layer and not excessively disturb the soil. The machine should have 2” spaced discs on a suspension allowing each disc to move independently over uneven surfaces. Small bare areas can be seeded by raking, hand broadcasting seed, and firming the soil. Reseed FlightTurf® at 5 lb per 1000 sq. ft.
- Apply fertilizer @ ½ lb. Nitrogen per 1000 square feet (slow release N) in early September if FlightTurf® coverage is not adequate. Maintaining new growth to a 4 inch height (from the ground) by mowing when the grass reaches 5 to 6 inches will promote rapid tillering, enabling FlightTurf® to fill in thin areas. Time fertilizer application prior to forecasted rain.
- Apply lime if required. FlightTurf® responds best to soil pH ranging from 5.5 to 6.4. Lime can be applied at any time of the year as long as the ground is not frozen. Fall application is best because winter snow and rain, combined with the freezing and thawing of soil, help to incorporate the lime into the soil. Lime can be applied at the same time as fertilizer.
- Inspect for annual and perennial weeds and if necessary control with mowings and reseeding, per recommendations of a qualified FlightTurf® specialist*.

Mid-October through December

- Last application of nitrogen should be no more than 6 weeks after first frost.

*For assistance contact FlightTurf® info@nativereturn.com

If an inspection by a FlightTurf® specialist is not possible:

Following the initial installation, the following late spring, when soil temperatures remain above 60°F, the weed cover within the turf stand should be assessed. In areas further north, this may occur several weeks later in the season.

During initial establishment of FlightTurf®, it is important to identify weeds as either **perennial** broadleaf weeds and brush or **annual** broadleaf weeds. Regularly mow as low as possible, down to the top of the FlightTurf® leaf blades until the FlightTurf® has become sufficiently established.

In the event of the presence of **annual** broadleaf weeds and annual grasses, the undesirable vegetation is controlled preferably in May or June during the time of the annual mowing of the FlightTurf® seed stalks. In the first year of FlightTurf® establishment, the FlightTurf® grasses are mowed a second time if desired, no less than 4 inches, preferably 5 inches from the ground, which should be done preferably in August in order to reduce the seed production of the annual undesirable weedy vegetation.

Any mowing techniques known in the industry are acceptable, but the use of a flail-type mower to cut and mulch the grass clippings is preferred. Mowing equipment must have sharp blades and be capable of making a ‘clean, sharp’ cut, as opposed to shredding or trampling the cuttings of FlightTurf®. Mowing on days when extreme heat and sun are forecast should be avoided.

In order to prevent potential areas where the FlightTurf® seeds or grass have not established or have been damaged, such areas are reseeded or overseeded, preferably in late August or early September, at approximately 220 lbs/acre, following initial installation instructions.

Geographical location and weather conditions will determine the best seeding time. Typically, between late August and late September or early October is preferred. Further south, seeding can be extended into late October. Fewer weeds germinate in fall seeding. Seeding in March to mid-May is a secondary option, however is less effective. Weeds will be more prevalent and must be controlled by following the above protocols.