



American Soil Technologies, Inc.
Technologies and Innovation

Presents

STOCKOSORB

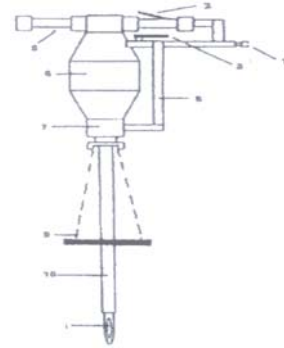
Application with the Turbo-Lance-injector

STOCKOSORB is an absorbent polymer specially designed to improve the water and nutrient retention of soils. By applying STOCKOSORB in the soil the frequency of irrigation as well as the leaching of valuable nutrients is reduced. STOCKOSORB allows planting even under marginal soil and climatic conditions.

For many years STOCKOSORB has been used successfully to improve growth and survival of commercially planted trees. Survival of

newly planted trees is enhanced by 30%. Fruit bearing trees and shrubs achieve yield increases of between 10 and 50%.

The Turbo-Lance-injector employs a new patented technology that allows granular material to be injected into the root zone of established trees. The injector pulses by means of high air pressure to inject fertilizers and other soil amendments in li- quid or solid form into the soil with precisely targeted depths ranging from 20 - 120 cm.



Soil injection of STOCKOSORB offers significant advantages:

- STOCKOSORB soil conditioner is placed in direct contact with tree roots. Root hairs take up the water immediately from the water-saturated gel particles.
- The injector gently penetrates hard soils without damaging the roots.
- By creating a network of fissures and capillaries in the soil, infiltration of air, nutrients, and water is improved. At the same time surface compaction is reduced.
- Due to the more uniform water and nutrient supply the root growth is enhanced resulting in higher productivity of the tree and improved quality of fruits.
- Under arid climate conditions the irrigation frequency are extended. 30 - 60% reduction in irrigation water.
- The risk of plant damage due to drought stress is significantly reduced.
- Soil injection is cost effective.

Field tests have proven that soil injection of STOCKOSORB results in an improvement in tree productivity with significant savings in irrigation and fertilization.

Turbo-Lance-injector

The high speed Turbo-Lance-injector is perfectly suitable to inject STOCKOSORB soil conditioner in the form of a pre- hydrated gel into the root zone of established trees. The STOCKOSORB formulation is filled in a .66 gallon hopper.

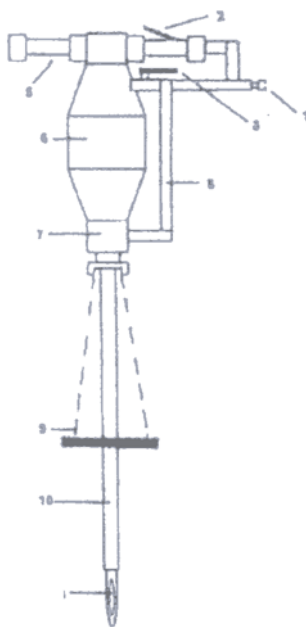
For effective operation an engine driven high air compressor with a pressure of 115 PSI and a minimum air volume of 10.6 CFM is required. Only proofed high-pressure hoses (min. 290 PSI) with safety connections should be used.



Fig.Turbo-Lance-Injector

Technical data:

Air volume	10.6 cubic feet /minute
Air pressure	100-115 PSI
Weight	22 pounds
Pipe length	47.24 inches
Injection depth	7.9 – 47.24 inches
Injection diameter	.87 inches



- I air connecting
- 2 starting cock of impact mechanism
- 3 ball cock of air injection
- 4 air outlet
- 5 handle
- 6 impact mechanism
- 7 taper socket (pins) of the injection pipe
- 9 splash protection
- 10 injection pipe

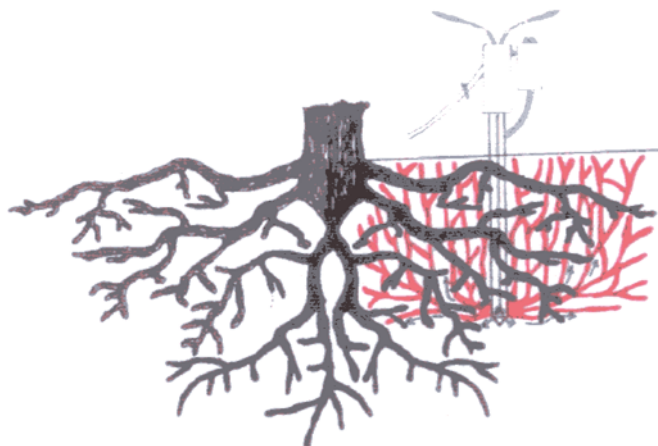


Fig. Tree maintenance by the Turbo-Lance-Injector

Compressed air creates a network of fissures and capillaries in the soil. Blown into these capillaries, STOCKOSORB® and other soil amendments are efficiently distributed in the root zone of the tree.

Preparation of the pre-hydrated STOCKOSORB® formulation

Necessary equipment

- One big container for the preparation of the formulation (13.2 gallons)
- Water soluble mineral / organic fertilizer or micro nutrients with a low chloride content
- Balance with a 3.5 oz scale
- One water tank filled with salt free water (26.4 – 52.8 gallon)
- Stirring equipment
- 1 - 2 buckets to transport the formulation
- One beaker
- One water-can (2.6 gal) with a big opening to allow an easy pouring of the formulation

Formulation process

- Mix 2.2 lbs of STOCKOSORB® slowly into 80 liters of water (drinking quality), stir the mixture for 30 minutes

Method of Application

1. Fill the hopper of the injector with the STOCKOSORB formulation and close it with the end plate.
2. Due to the high air pressure, the injection pipe easily penetrates into the soil. The air outlet at the end of the injection pipe must be placed at a minimum depth of 15.7” below the soil surface.
3. The best location for the application of the STOCKOSORB formulation is the deep part of the main root system or even below the root system.
4. After reaching the optimal depth open the ball cock smoothly for the air injection. This air stream breaks up and opens the soil in the chosen depth.

and let it settle for 15 minutes. Stir the mixture again for 15 minutes until the single water saturated gel particles are formed.

- Add 0.08% water-soluble fertilizer (e.g. 80 g for 26.4 gallons of water) and / or 0.02% other additives (e.g. Fe-Chelate). Stir the mixture again for 15 minutes.

The mixture should not contain free water. The consistency of the mixture can be adjusted by varying the amount of STOCKOSORB soil conditioner or water. To operate the Turbo-Lance-injector two workers are needed, one for the handling of the injector and one for filling the hopper with the STOCKOSORB formulation. The hopper has to be re-filled after each injection. For each STOCKOSORB injection only one minute is needed.

5. Keep the air pressure in the soil and open the ball cock of the STOCKOSORB container. Now the Formulation is blown through the air outlet at the spike of the injector into the opened fissures in the soil. During the application process turn the lance to distribute STOCKOSORB in a circle around the injection pipe. When the container is empty you can hear a whistle.
6. Close all ball cocks and pull out the injector from the soil. This process can be facilitated by several short openings of the main ball cock for the air injection.

Start a new application.

Attention!! Due to the fact that STOCKOSORB improves the water holding capacity of the soil irrigations should only be done when the moisture content of the soil drops to a minimum level (to be checked with a professional moisture sensor).

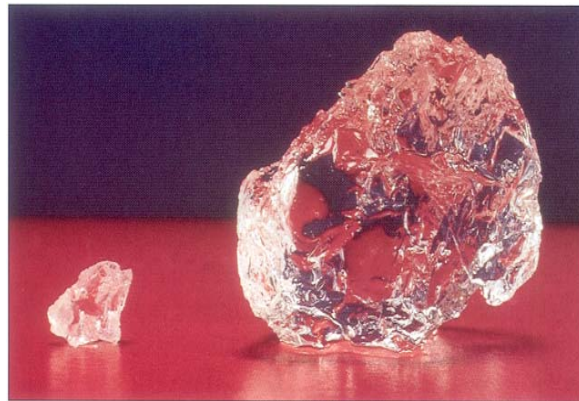
The STOCKOSORB injection should be repeated every 3 years.

The STOCKOSORB can be applied together with coated slow release fertilizer and/or granulated organic fertilizer and/or soil conditioner.

Dosage rates per tree

The dosage rate per tree depends very much upon soil conditions, root growth conditions and the depth of injection. 5 gallons of STOCKOSORB formulation are distributed in the soil in a radius of 1.6 – 2.6 ft around the injector.

Polymer granule - hydrated with water (rt.)



Root zone diameter	STOCKOSORB Formulation	STOCKOSORB “dry”
<1.6 ft	1 - 2 tank loads	.05 - .11 lbs
1.6 – 3.2 ft	2 - 4 tank loads	.11 - .22 lbs
<9.8 ft	6 - 2 tank loads	.33 - .66 lbs
>9.8 ft	12 - 24 tank loads	.66 - 1.3 lbs

The STOCKOSORB injection should be repeated every 3 years.

STOCKOSORB Soil Injection presents a unique way to let your trees grow !



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