

Microclover®

A tough, attractive green sward

 **DLF**
TRIFOLIUM
SEEDS & SCIENCE

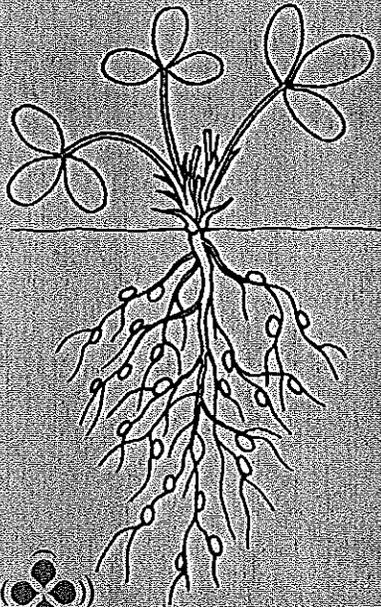
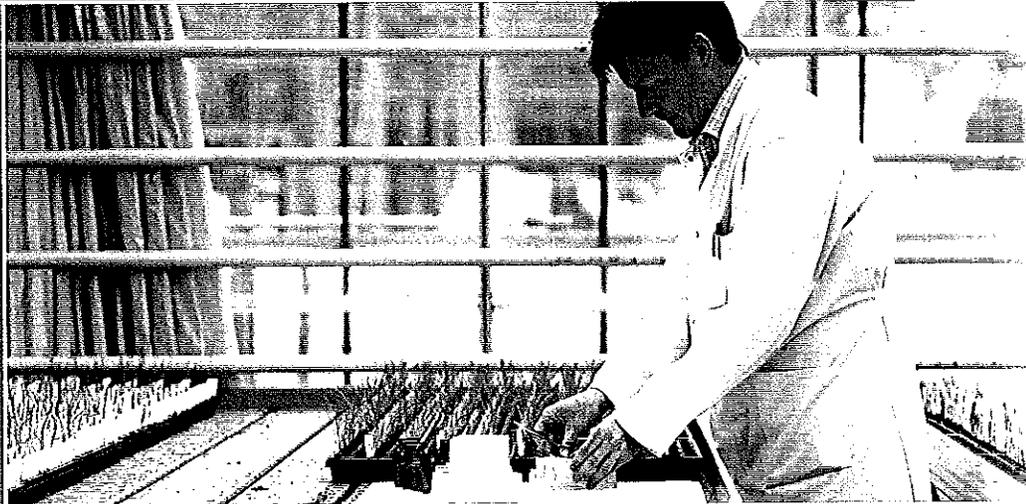


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micro

by DLF-TRIFOLIUM

DLF-TRIFOLIUM SEEDS & SCIENCE

DLF-TRIFOLIUM closely focuses on the demands of customers as well as on the latest trends in the grass seed and clover markets. Offering one of the world's largest research and breeding programmes in turf, DLF-TRIFOLIUM is working continually to improve the quality and reliability of all its varieties. To ensure these varieties meet the needs of the marketplace, they are tested in a worldwide trialing network to assess their adaptation to different environmental conditions and uses.

DLF-TRIFOLIUM is the world's largest producer and distributor of grass seed, with subsidiaries in Denmark, Sweden, Holland, Belgium, UK, France, Germany, Czech Republic, Russia, United States, China and New Zealand. From such a worldwide distributor network, customers can expect the best service and support.

Just like the players sports turf surfaces are always under a lot of pressure. A recent breakthrough in breeding has made it possible to ease this pressure. This revolution in sports turf involves tiny clovers, Microclover®, which are now welcomed in turf due to their many benefits.

Microclover® (*Trifolium repens*) is a leguminous species. Legumes can fix nitrogen from the air. This N-fixation takes place in root nodules that are formed by the symbiotic *Rhizobium* bacteria. The continuous process of parts of the roots dying and degenerating means that the accumulated nitrogen is made available to the surrounding grass plants.

Microclover® also produces stolons so that it can spread itself evenly over the pitch.

Adding 5% of Microclover® to the turf seed mixture will result in a much-improved

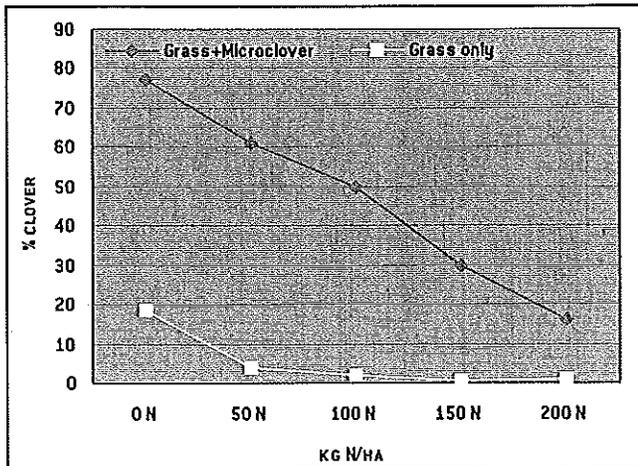


Growing conditions

Microclover® is adapted to a wide range of climatic and soil conditions; it is already growing successfully from Sweden to France and from the UK to Turkey.

Microclover® tolerates wet and shade conditions, as well as drought. However it can only tolerate wet conditions as long as the area is not flooded for long periods. The type of shade normally occurring in parks and on golf courses is not a problem for Microclover®. Its stolons allow it to regenerate itself after severe stress.

In order to maintain the Microclover® at the desired level below 50% in the sward, some nitrogen could be applied in



Main benefits of Microclover®

- Wear tolerant
- Sustainable
- Cost effective
- Improved visual merit
- Easy

spring and early summer. The nitrogen will favor the growth of the grasses. Depending on the growing conditions and level of wear, 0-100 kg N/ha is needed; around 40 kg N/ha should normally be sufficient. Summer and autumn applications will not be necessary.

Fertilizer application is most important in the year of installation.

As the Microclover® doesn't fix P, K or Mg from the atmosphere, these elements have to be applied as usual.

Figure left: Nitrogen application will favor the growth of grass, and lower the clover content.

Companion grasses

The first rule in our approach to mixture design is to choose the most appropriate species for the area of use. Microclover® grows quite aggressively and is very well suited to the latest fine leaved, dense, high quality perennial ryegrasses.

Strong creeping types of red fescue are 'strong' enough to be used in mixtures with perennial ryegrass and microclover. Slender creeping red fescue and chewing fescue are used

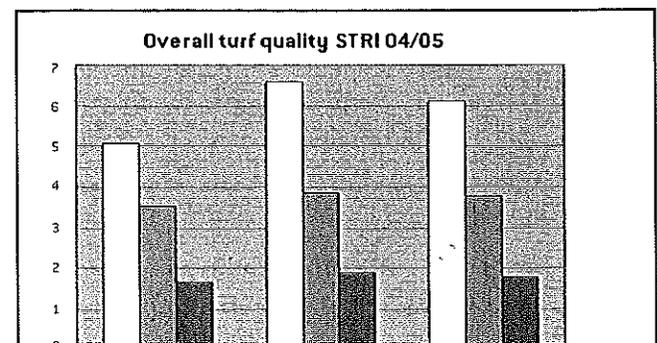
more in mixtures without perennial ryegrass where they find equilibrium with the Microclover®.

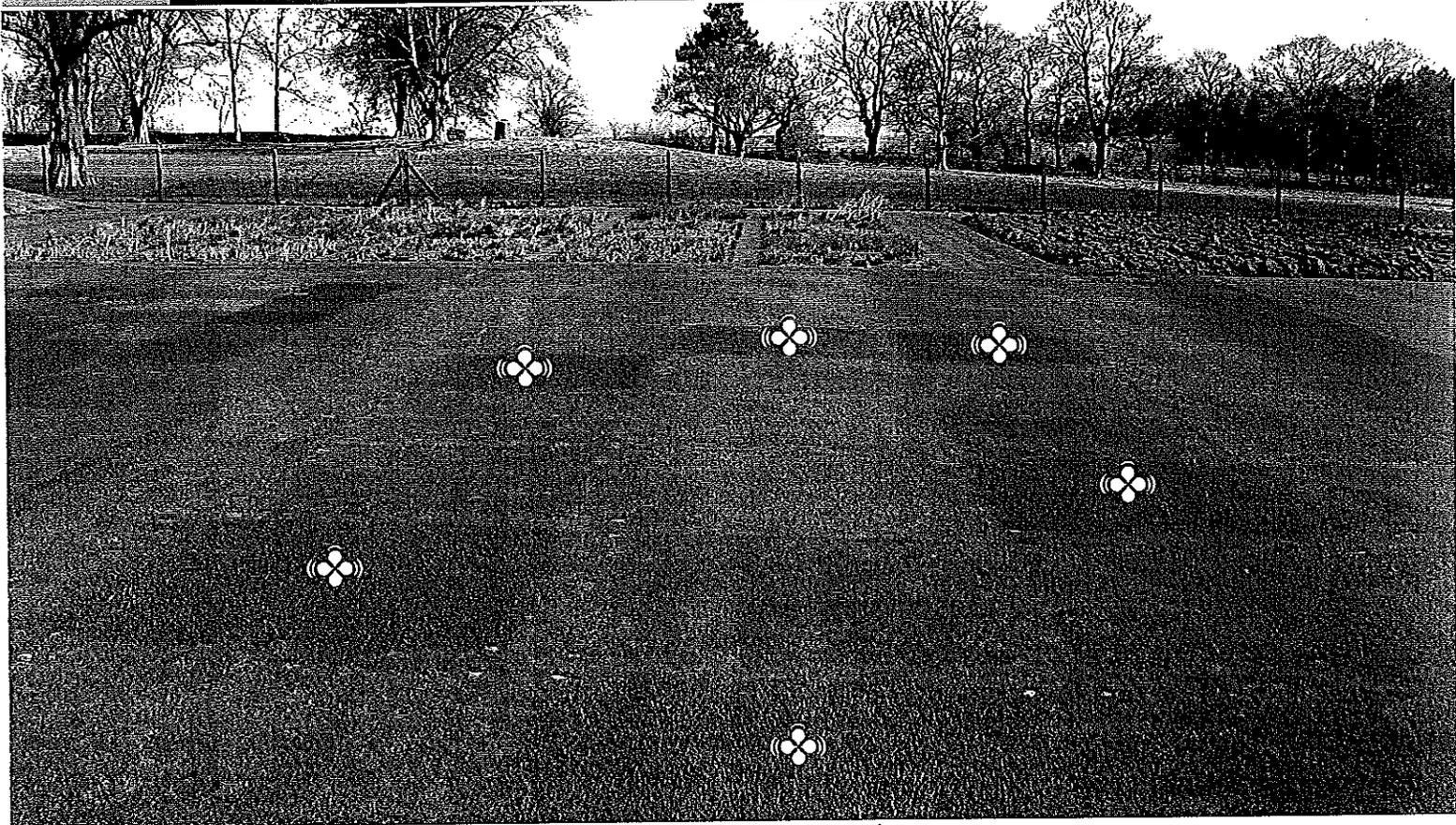
Smooth stalked meadow grass is a good partner for more continental climates. It grows less aggressively and is an ideal species to mix with Microclover® in areas that receive a lot of wear. In dry areas Microclover® can be added to a tall fescue and smooth stalked meadow grass mixture.

Wear tolerant

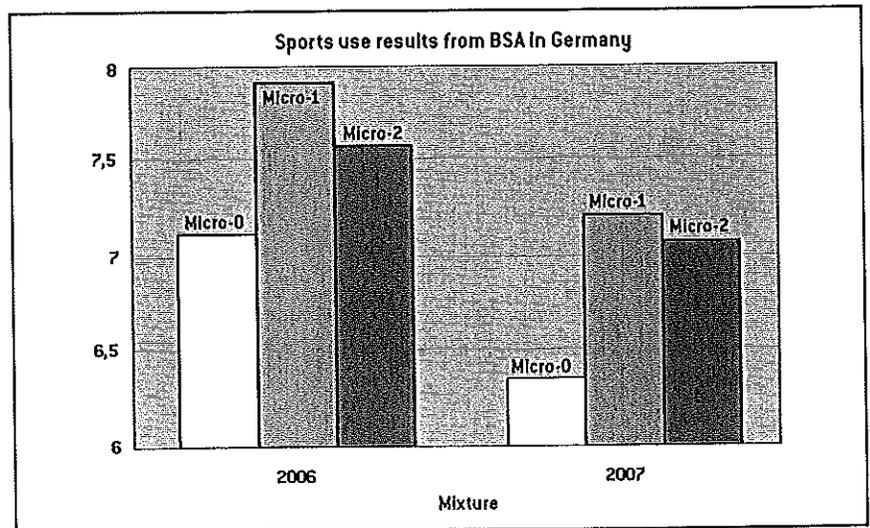
The appearance of turf containing Microclover® will be superior to traditional turf. The clover permanently fertilizes the sward, thus increasing its' wear tolerance. In addition it weaves its stolons with the grass, spreading evenly and integrating its leaves homogeneously into the sward. Microclover® will improve the performance of even the highest-ranking wear tolerant varieties.

Trials made by STR-Bingley in 2004/05 demonstrate how





Results from BSA trials in Germany confirm the excellent wear tolerance. The figures show that wear tolerance of even good grasses is further improved when Microclover® is added to the mixture (Micro-0 is grasses only, Micro-1 and Micro-2 are two different Microclover® varieties mixed into the same grass mixture).



The improved wear tolerance of Microclover® swards is very important, particularly for areas such as the goalmouths of sports fields, where ground cover can be difficult to retain.

Users in different countries in Europe confirmed these results, and increased the use of Microclover® in their pitches.

EASY

- less fertilizing
- less watering
- less mowing
- less hassle

Microclover®

Experiences with Microclover®

Belgium – Sport pitch

"I was predominantly interested in decreasing the amounts of fertilizers and water used on the pitches. In spring 2007 we decided to sow half a pitch with and half without Microclover®", said Mr. Frans Vercammen, pitch manager for KRC Genk in Belgium. "The first thing we noticed was the fast establishment of the Microclover® part; within two months we could use it, additionally we had far less weeds in this part of the pitch. The pitch has been in play intensively since July 2007. Also the stability of the pitch is tremendous. Mowing of the Microclover® pitch is easy, and the result is always perfect."

"It was at this moment we decided to use Win2Win Microclover® in all further renovations of our pitches, especially in the goalmouths; not only on the training pitches for our young players, but also on the main A-field."

Denmark – lawns

Landscape gardeners, Mette and Lars Krog have recently set up business as, Krog's Havekompagni in Kirke Hyllinge on Sealand in Denmark. They already have seven employees, and operate throughout all of Sealand. Their clientele is mainly made up of private gardens, but the company also undertakes construction work for business clients.

"We recommend that our customers use turf with Microclover®, because their lawn will be much more attractive, greener and denser. Our clients will find the lawn much easier to look after as it will need less irrigation and fertilizer compared to ordinary lawns without Microclover®."

Netherlands – parc

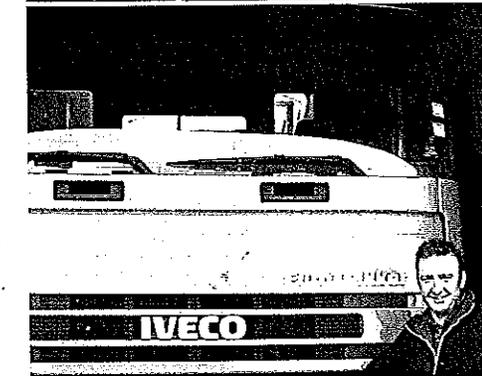
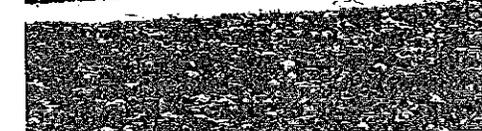
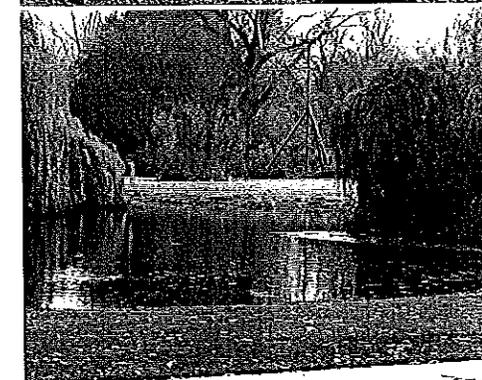
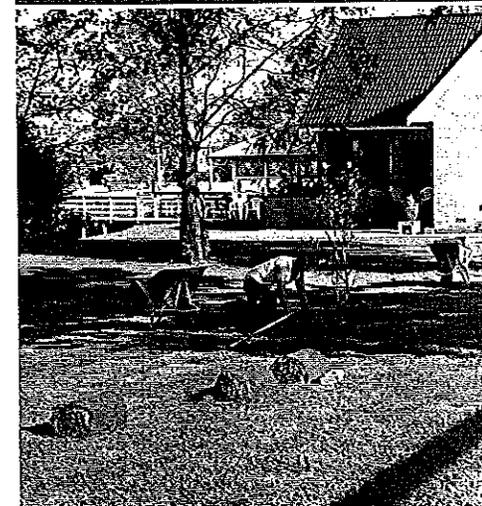
Menno van de Bos, employed by Krinkels in the Netherlands, is responsible for all the lawns in the famous Vondelpark, in Amsterdam.

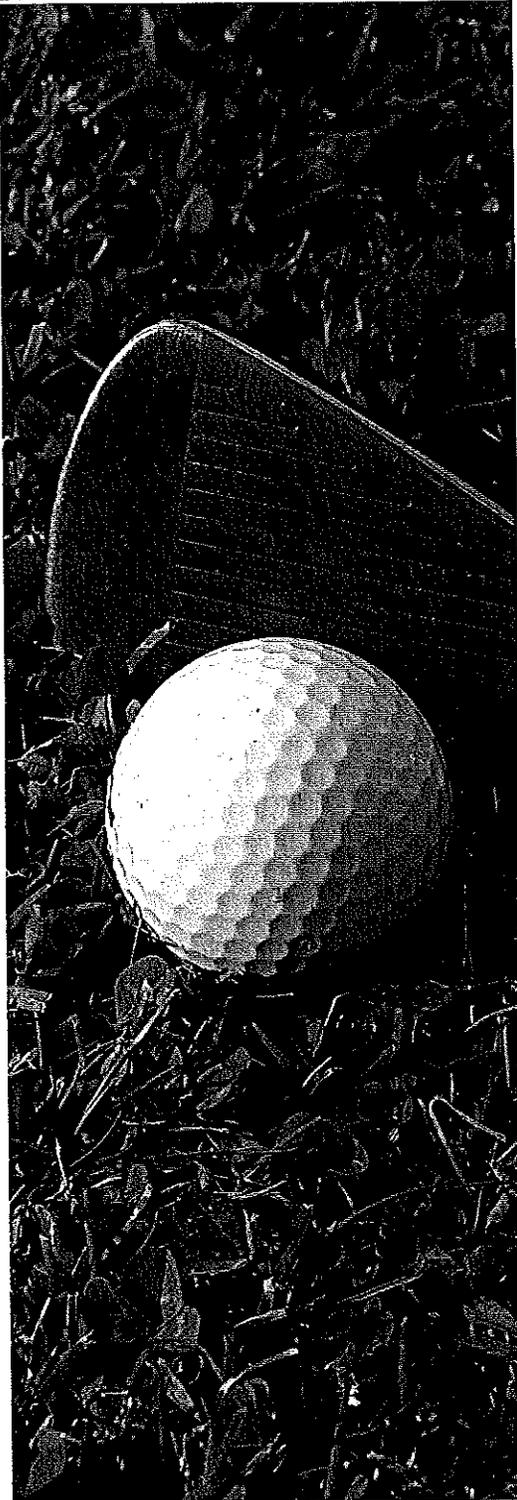
"We started with Microclover® in 2006. The lawns in the Vondelpark are intensively used. Microclover® really improves the wear tolerance of the lawns. Even after two years of use the lawns in which Microclover® was sown have a fresher and greener appearance compared to the other lawns. At the same time they needed less fertilizer and maintenance in general was easy and sustainable. It is a good product, especially when high wear tolerance is needed."

Belgium – landscaping

Landscaper Tom Colenbunders from Belgium employs two staff, and has a wide spread of activities: from traditional seeding to hydroseeding, from public works to cemeteries, roadsides to camp sites and private houses. He uses Microclover® everywhere.

"Once established, Microclover® remains very persistent in the lawn and tolerates close mowing. Its wear tolerance is excellent for pop festival sites". With Microclover® all the usual maintenance products are unnecessary; no more fertilizer, no more pesticides, less need for mowing - which will make your lawnmower last longer. As Microclover® takes care of itself, the only task is to enjoy the appearance of the lawn; a constant green colour, no diseases, no drying out – and all this without effort."





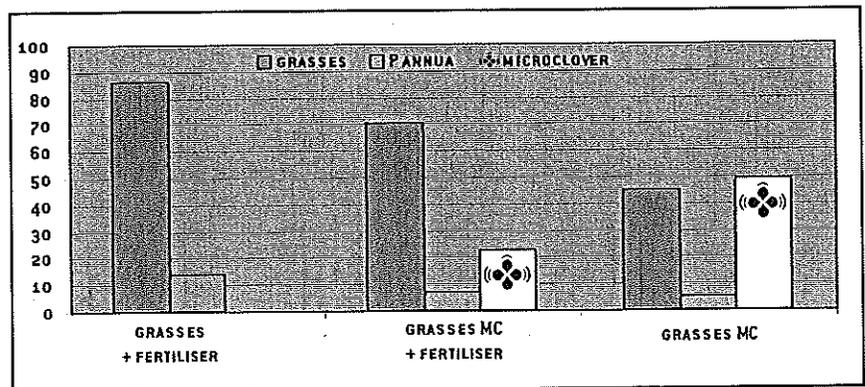
Applications

- Sports fields
- Parks
- Road sides
- Driving lanes in nurseries
- Extensive green areas in general

Sustainable

Mixed with grasses, the Microclover® grows around the grass plants and feeds them nitrogen. The nitrogen continues to be released into the soil during the growing season until the first night frosts occur. The nitrogen is therefore available when and where it is needed, and so there is no risk of leaching, nor is there a risk of fertilizer burning in the field. The use of Microclover® can be equivalent to fertilizer-applications of up to 180 kg N per ha per year. For turf Microclover® is the perfect permanent slow release N-fertilizer.

Additionally Microclover® is an aggressive species, filling in gaps quickly. It competes well with weeds, thus reducing the need for herbicides. Herbicides should even be avoided as they may harm the Microclover®. See the next figure for the effects of Microclover® on the compositions of the pitch (MC = Microclover®).



As nitrogen is continually available during the growing season there is a reduced presence of disease like red thread, rusts and Fusarium. Microclover® fertilizes the grass and helps to maintain its healthy appearance. Microclover® acts as a constant drip feed.

Cost effective

Apart from being wear tolerant and sustainable, Microclover® is also very cost effective. The price of a mixture containing Microclover® is easily recovered during the first year after sowing, because of reductions in the cost of fertilizer and its application, weed control, mowing and irrigation.

For less money a better pitch.

Improved visual merit

Clover remains greener much longer than grasses do, in both drought and cold conditions. Swards containing Microclover® are a brighter green earlier and later in the year. It has a good summer colour, as it is particularly resistant to drought because of its deep rooting system.

Normal white clover looks considerably different to turf grass. Microclover® has such tiny leaves (one third of the size of ordinary white clover) and short stems, so that from a distance of two meters it looks like ordinary grass.

Microclover® does well in shaded areas that receive at least some sunshine during a day. Microclover® is evenly distributed in the sward; it doesn't have the patchy and weedy appearance as seen with ordinary white clover.

Created by
nature
perfected by
DLF



Dedication To bring out The very best In seed

Microclover®

- improves wear tolerance
- is sustainable
- is cost effective
- makes your life easier
- improves the visual merit of a field
- results in the best quality fields possible

This brochure elaborates on the benefits of Microclover®, including the research behind it.

DLF-TRIFOLIUM focusses on offering you the best products possible. Top quality seed for top quality customers: Microclover®

Microclover® is exclusively marketed by DLF-TRIFOLIUM, Topgreen, Prodana and Innoseeds.

