

DLF Pickseed is proud to be a market leader in developing turf, forage, and clover varieties for today and the future. With over 10,000 research plots in Oregon and Kentucky, and ongoing cooperative work with universities and plant breeders throughout the world, DLF Pickseed has been successfully breeding the highest-rated improved varieties in the nation. Headquarters for DLF Pickseed are strategically located in the Pacific Northwest where over half the world's cool season grasses are produced.

The DLF Trifolium Group, of which DLF Pickseed and Seed Research of Oregon are members, is the world's largest producer and marketer of grass, clover, and specialty seeds. Annually marketing over 275 million pounds of seed, the Group's diversified research and breeding programs are aligned to work cooperatively with global production and international distribution alliances. The partnership facilitates DLF Pickseed's goal to supply superior turf and forage seed for all ventures of use around the world.

Strength and stability means
DLF Pickseed can deliver.

"The green solution!"



**Benefits include:**

- Eco-friendly
- “Spoon feeds” nitrogen to the grass
- Produces healthy, dense turf
- Low growth height - minimal flowers
- Crowds out and prevents weeds
- Tolerates very low mowing heights
- Attractive green color
- Fills in bare spots naturally
- Excellent wear and traffic tolerance
- Very shade tolerant
- Rapid establishment
- Excellent for erosion control
- A natural filter
- Compatible with all grasses
- Drought tolerant
- Less desirable to white grubs

“The green solution!”

Recommended for:

- Golf courses
- Home lawns
- Landscapers
- Municipalities
- Athletic Fields
- Parks
- High traffic areas
- Waterways & Slopes

Microclover® Testimonials

“Proponents of organic lawn care are pushing to bring clover back as a lawn care plant mixed with turf grasses. They point to Microclover’s benefits including its ability to withstand drought, thrive in poor soil and supply nitrogen to other plants.” – **McClatchy Tribune**

“A lawn consisting of five percent Microclover® provides all the nitrogen the turf grass needs. Microclover® is great at crowding out weeds.” – **Pittsburgh Tribune-Review**

“Microclover’s biggest benefit is its ability to fix nitrogen, which means Microclover® is it’s own little fertilizer factory.” – **Melinda Myers, horticulturist and author of 20 gardening books, including ‘The Ohio Lawn Guide’**



When the **Port of Portland** in Portland, Oregon was faced with finding a sustainable solution to establishing a high visibility area with turf that would not consume additional resources in terms of mowing and fertilization, they turned to Microclover.®



Grand Central Park, Miami has received a lot of press on TV, newspaper and online for their use of Microclover® – all of the green area is currently planted in Microclover®.

Little Rock Zoo discovered that the wear-ability of Microclover® is strong enough for their 6200 lb. elephant, Ellen, to walk on.



Microclover® Protection for Waterways

According to a recently released nationwide survey, more than half the country's rivers and streams are in poor biological health (EPA March 26, 2013). Water tests indicate they are unable to support healthy populations of aquatic plants, insects and other creatures primarily because of high levels of nutrient pollution. The most widespread problems are caused by nitrogen and phosphorus washing into rivers and streams from farms, cities and sewers. States, such as Maryland, have already implemented laws governing the use of lawn fertilizers. This affects fertilizer manufacturers and distributors, lawn care professionals and homeowners. DLF Pickseed is currently working with the University of Maryland to provide a solution. They are testing Microclover® for use as a component in turf grass mixtures that would act as a natural, biological replacement for commercial nitrogen fertilizer.

Microclover® has the ability to:

- Create an eco-friendly lawn that produces its own nitrogen
- Decrease the environmental impact of nutrient runoff
- Provide a healthy alternative to chemical lawn treatments



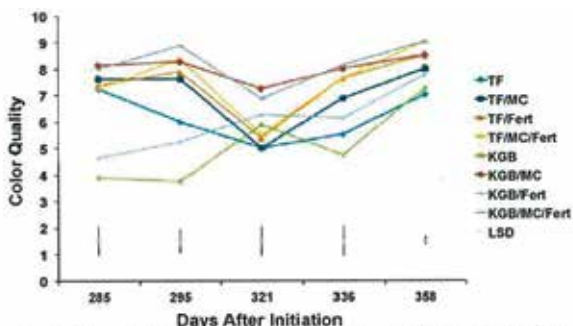


Figure 6. Color quality is based on a 1-9 scale (1 = dead, 6 = acceptable, 9 = excellent). Error bars denote least significant difference of the means.



Figure 7. (A) Kentucky bluegrass alone (B) Kentucky bluegrass and 5% Microclover mix by weight (C) Tall fescue and 5% Microclover mix by weight

Conclusions

1. The inclusion of MC with both KGB and TF exhibited better overall color quality than either species alone. This reflects a possible fertility benefit with the inclusion of MC in turfgrass mixtures.
2. Microclover was more predominant in the KGB/MC mixtures due mainly to slower establishment and less competition than TF/MC mixtures (over 40-50%).
3. Overall, TF treatments consistently resulted in better color quality than comparative KGB treatments reflecting TF as a more sustainable turfgrass species. The higher nitrogen content of the KGB/MC mixtures reflects a positive fertility contributor.
4. Overall, TF drought tolerance was superior to KGB. However, the KGB/MC mixtures showed enhanced drought tolerance among KGB treatments during the dry-down regime.
5. All TF treatments resulted in lower weed numbers compared to KGB alone and KGB/Fert treatments. This further substantiates the low input, sustainability characteristics of TF. KGB/MC mixtures however resulted in significantly less weeds among other KGB treatments, suggesting a MC fertilizer contribution and/or allelopathy.

References

- Norris, H. 2008. Use of White Clover (*Trifolium repens* L.) in Turf Grass Mixtures. 2nd European Turfgrass Society Conference.
 Wagner, M., W. Hield, H. Schneider, U. Thiem, W. Clausen. 2009. Microclover - a Revolution for Lawns. 2nd European Turfgrass Society Conference.
 SAS Institute. 1990 SAS/STAT user's guide. Vol. 2. 4th ed. SAS Institute. Cary, NC.

Turfgrass Quality - The Ohio State University Trial

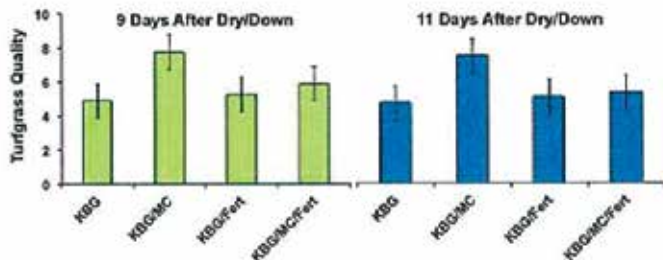


Figure 4. Turfgrass quality based on a 1-9 scale (1 = dead, 6 = acceptable, 9 = excellent). Error bars denote least significant difference of the means.

Microclover[®]

Nature's Natural Solution



MICROCLOVER[®] - a breakthrough in sustainable lawn care

DLF Pickseed Microclover[®] is a unique clover plant developed by DLF Pickseed breeders. It is a very tiny white clover featuring all the benefits of traditional clover and more. Microclover[®] is gaining in popularity around the world as a natural solution for a dense, healthy turf in areas requiring low maintenance. When used at a low rate in grass seed mixtures, Microclover[®] will produce a beautiful self-sustaining lawn. The Microclover[®] plants create a canopy within the grasses that prevents weeds, such as dandelions, from establishing. It also fixes atmospheric nitrogen into a usable form of natural fertilizer for the grass. The Microclover[®] plants are evenly dispersed via stolons, resulting in an attractive blending of grasses and clover. White grubs prefer not to eat Microclover[®] roots and the adults don't prefer to lay their eggs in Microclover[®]. Thus, Microclover[®] combined with tall fescues can help control grub damage in turf applications.

