

TURF MIXTURES



**NEW TURFLINE
ECO LAWN MIXTURE**

- now with


microclover
by DLF-TRIFOLIUM

DISTRIBUTORS GUIDE TURF MIXTURES 2006

TO SUIT ANY CLIMATE CONDITION

 **DLF
TRIFOLIUM**
SEEDS & SCIENCE

Big Turflines



New Turflinesbags

The successful Turflines family is now being extended with 6 high profile colourful 7,5 kg bags. The bags are made in the well-known Turflines design and are very flexible as they contain 9 different languages.

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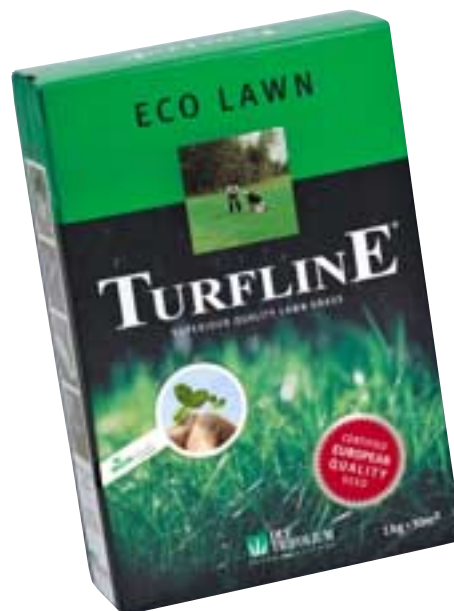
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News 2006



Several years of intensive breeding has resulted in the very small but revolutionary microclovers that contain all the great benefits of tiny micro leaves. The Turflin Ecolawn mixture has now been upgraded considerably by including Microclover.



The new turf microclover makes life easier. When using microclover in the lawn you

- get a greener lawn all year round
- get a weedfree lawn
- reduce the need for fertilizer and irrigation



Seeds & Science

DLF-TRIFOLIUM is the world's largest producer and exporter of grass seeds with a marketshare of more than 40% in Europe and approx. 20% globally of cool season grasses. We are active in more than 50 countries all over the world and have subsidiaries in Denmark, Holland, Germany, UK, France, the Czech Republic, China, Russia, the United States and New Zealand.

DLF-TRIFOLIUM performs one of the world's largest research and breeding programmes within grass variety development. Through

the breeding programme we constantly improve quality and at the same time strengthen reliability of varieties and a number of smaller species.

DLF-TRIFOLIUM has managed to adapt to the changing demands of our customers for more than a century. We have constant focus on the trends and changes in the market. This makes DLF-TRIFOLIUM the obvious choice for our customers - also in the future.



Choose the right mixture

Mixture	Luxury lawn	Normal lawn	Play-grounds	Sports-fields	Horse race-fields	Parks	Road verges/slopes	Flower meadows	Golf Tees	Golf Fairways
MASTERLINE										
Golfmaster	*****	*****	****	**		****	***			*****
Sportmaster	****	****	*****	*****	*****	***			*****	
Shademaster	*****	****	***	**		*****	***			
TURFLINE										
Sunshine		****	****	***	***	***				
Ornamental	***	****	***	**		***	***			
Sport	***	***	****	****	***	***	**			
Shadow	****	***				****	**			
Grassfix	***	****	****	***	***	****	**			
Eco-lawn		****	***			****				
Wild Meadow								****		
UNIVERSAL										
Robustica		***	**			***	**			
Playground	**	**	***			**	**			
Park	**	**				***	***			
Road	**	***				***	****			

- ***** Superiour mixture
- **** Very good mixture
- *** Good mixture
- ** Can be used





Background for Choice of Species

COLD & TEMPERATE REGIONS

Red fescue (*Festuca rubra*) is a very fine-leaved, dense, drought, shade, and cold tolerant grass. It is used as the main component in mixtures for gardens and shady places.

Smooth-Stalked Meadow Grass (*Poa pratensis*) has the highest wear tolerance and hereto also a very high cold tolerance. This makes it a very important component in mixtures for sport and hard wear.

Perennial ryegrass (*Lolium perenne*) exhibits both a high wear tolerance and a fast establishment. It is added to the mixtures to ensure rapid greening up of the area.

Hard fescue (*Festuca ovina duriuscula*) has fantastic drought tolerance and is added to mixtures for road verges. The drought tolerance is combined with cold tolerance and very fine leaves.

HOT & DRY REGIONS

Tall fescue (*Festuca arundinacea*) is a perfect grass for hot and dry regions. It has a very deep root system, which ensures a good water take-up and a cooling down effect on the plants. The wear resistance is very high and the shade tolerance is good. This makes it the principal component in the mixtures for hot & dry conditions.

For gardens and parks where density and fineness of leaves is essential, **Red fescue** (*Festuca rubra*) is included with **Smooth-Stalked Meadow Grass** (*Poa pratensis*). **Smooth-Stalked Meadow Grass** has a good heat tolerance and grows well with **Tall fescue** (*Festuca arundinacea*) where it fills in holes and keeps it more fineleaved. After a very hot period, **Smooth-Stalked Meadow Grass** is also able to recover quickly from the underground rhizomes.

Perennial ryegrass (*Lolium perenne*) is used as the "starter" of the mixture for rapid establishment and green-up.



GOLFMASTER

The mixture for luxury lawns in private gardens and for green areas

Cold & temperate regions Sowing rate: app. 3 kg/100 m ²		Hot & dry regions Sowing rate: app. 3 kg/100 m ²	
10%	Lolium perenne variety 1	5%	Lolium perenne variety 1
5%	Lolium perenne variety 2	5%	Lolium perenne variety 2
10%	Festuca rubra trichophylla variety 1	25%	Festuca arundinacea variety 1
10%	Festuca rubra trichophylla variety 2	25%	Festuca arundinacea variety 2
15%	Festuca rubra commutata variety 1	10%	Festuca rubra rubra
15%	Festuca rubra commutata variety 2	15%	Poa pratensis variety 1
15%	Poa pratensis variety 1	15%	Poa pratensis variety 2
15%	Poa pratensis variety 2		
5%	Agrostis Stolonifera		



SPORTMASTER

The mixture with exceptional wear tolerance for sports fields and areas with high wear

Cold & temperate regions Sowing rate: app. 3 kg/100 m ²		Hot & dry regions Sowing rate: app. 3 kg/100 m ²	
15%	Lolium perenne variety 1	5%	Lolium perenne variety 1
10%	Lolium perenne variety 2	35%	Lolium perenne variety 2
15%	Festuca rubra commutata variety 1	35%	Festuca arundinacea variety 1
10%	Festuca rubra commutata variety 2	35%	Festuca arundinacea variety 2
25%	Poa pratensis variety 1	10%	Poa pratensis variety 1
25%	Poa pratensis variety 2	10%	Poa pratensis variety 2



SHADEMASTER

The perfect mixture for parks and shady areas

Cold & temperate regions Sowing rate: app. 3 kg/100 m ²		Hot & dry regions Sowing rate: app. 3 kg/100 m ²	
10%	Lolium perenne variety 1	5%	Lolium perenne variety 1
10%	Lolium perenne variety 2	5%	Lolium perenne variety 2
15%	Festuca rubra trichophylla variety 1	25%	Festuca arundinacea variety 1
15%	Festuca rubra trichophylla variety 2	25%	Festuca arundinacea variety 2
15%	Festuca rubra commutata variety 1	20%	Festuca rubra rubra
15%	Festuca rubra commutata variety 2	10%	Poa pratensis variety 1
10%	Poa pratensis variety 1	10%	Poa pratensis variety 2
10%	Poa pratensis variety 2		



MASTERLINE[®]

The Masterline mixtures are designed for professional use and for the very best results. The mixtures consists of fine-leaved and densely growing quality varieties. For enhanced performance two varieties from the most essential species are always used in the mixtures. This ensures that the lawn is adaptable to local conditions.

GOLFMMASTER for cold & temperate regions is the ideal mixture for golf fairways. SPORTMASTER is the best you can get for golf tees, also for cold and temperate regions.

The mixtures are packed in high quality boxes each containing 1 kg of seed. Mixtures can also be supplied in 20 kg bags. The text on the boxes is in 7 different languages and an additional language can be added on a label. Composition and varieties are stated on the label.



ORNAMENTAL

Mixture for ordinary lawns

Cold & temperate regions Sowing rate: app. 3 kg/100 m²

10%	Festuca rubra commutata
45%	Festuca rubra rubra
15%	Poa pratensis
5%	Festuca ovina duriuscula
25%	Lolium perenne

Hot & dry regions Sowing rate: app. 3 kg/100 m²

10%	Lolium perenne
50%	Festuca arundinacea
30%	Festuca rubra rubra
10%	Poa pratensis



SPORT

Mixture for sports fields and other areas with hard wear and traffic

Cold & temperate regions Sowing rate: app. 3,5 kg/100 m²

30%	Festuca rubra commutata
40%	Poa pratensis
25%	Lolium perenne
5%	Festuca ovina duriuscula

Hot & dry regions Sowing rate: app. 3,5 kg/100 m²

65%	Festuca arundinacea
20%	Poa pratensis
15%	Lolium perenne



GRASS FIX

Mixtures for renovation

Cold & temperate regions Sowing rate: app. 3 kg/100 m²

60%	Lolium perenne
20%	Festuca rubra rubra
20%	Poa pratensis



SHADOW

Mixture for lawns in shady areas

Cold & temperate regions Sowing rate: app. 3 kg/100 m²

40%	Festuca rubra rubra
25%	Festuca rubra trichophylla
10%	Festuca ovina duriuscula
5%	Poa trivialis
20%	Lolium perenne

Hot & dry regions Sowing rate: app. 3 kg/100 m²

10%	Lolium perenne
50%	Festuca arundinacea
20%	Festuca rubra rubra
20%	Poa pratensis



SUNSHINE

All round mixture

All round mixture for both hot & dry as well as for cold and temperate regions Sowing rate: app. 3 kg/100 m²

25%	Lolium perenne
40%	Festuca arundinacea
20%	Festuca rubra rubra
15%	Poa pratensis



The straight route to success in all kind of areas

The mixtures are composed of good quality varieties in 0,5 and 1,0 kg boxes in an attractive design. 7 different languages are printed on the boxes and an additional language can be added on the label together with the mixture composition.

The Turflin family is being extended with 6 7,5 kg bags in the same colourful design as the boxes. The bags contain 9 different languages. The mixtures are also available in 20 kg bags.

TURFLINE®

ECO LAWN **microclover** by DLF-TRIFOLIUM



The ecological solution to a green lawn without using Nitrogen. For homegardens, parks and playgrounds

Cold & Continental regions Sowing rate: app. 3 kg/100 m²

30%	Lolium perenne
10%	Poa pratensis
15%	Festuca rubra trichophylla
40%	Festuca rubra rubra
5%	Trifolium repens

WILD MEADOW



Annual and perennial mixture of wild herbs with slow and low competing companion grasses. The herbs are in a wide range of colours and flowering time.

Sowing rate: app. 1 kg/100 m²

Universal

the fast and economic way of greening up!

The mixtures are composed of fast establishing and vigourously growing varieties suitable for green areas with limited wear and low input. The mixture composition is on the back of the 1,0 kg plastic bags and the mixture application is on the front label. The mixtures are also available in 20 kg bags.



PLAYGROUND

Mixture for areas with some wear

Sowing rate: app. 3,5 kg/100 m²

- 40%** Lolium perenne
- 20%** Poa pratensis
- 40%** Festuca rubra rubra

Available in 1 kg plastic bags and in 20 kg bags.



PARK

Mixture for shady areas

Sowing rate: app. 3,5 kg/100 m²

- 30%** Lolium perenne
- 40%** Festuca rubra rubra
- 30%** Festuca ovina duriuscula

Available in 1 kg plastic bags and in 20 kg bags.



ROBUSTICA

Mixture for normal gardens

Sowing rate: app. 3,5 kg/100 m²

- 30%** Lolium perenne
- 55%** Festuca rubra rubra- two varieties
- 15%** Poa pratensis

Available in 1 kg plastic bags and in 20 kg bags.

ROAD

Mixture for roadsides

Sowing rate: app. 3,5 kg/100 m²

- 50%** Festuca rubra rubra
- 40%** Lolium perenne
- 10%** Festuca ovina duriuscula

Only available in 20 kg bags.

TURFLINE®



The TURFLINE banners are part of the quality image synonymous with Turflin and DLF-TRIFOLIUM. The banners are made of cardboard with print on both sides, which makes them very suitable for hanging above the products. They improve product visibility and make efficient use of store space. Dimensions of the banners are 99 x 34 cm.

The leaflet enables the customer to choose among the different TURFLINE mixtures.



Communication and Point of Sales Materials



An attention drawing "wobler" has been made for use on the shelves in shops and stores.



Image poster: dimensions 50 x 70 cm.

Two new imageposters have been designed to support DLF-TRIFOLIUM as the superior grass seed brand. The dimensions of the posters are 60 x 100 cm.



Image poster: dimensions 70 x 100 cm.

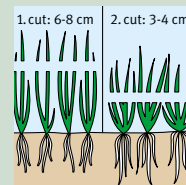
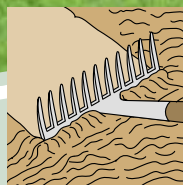


The large Masterline poster supports the sales of the stylish Masterline boxes.



MASTERLINE poster: dimensions 70 x 100 cm.

MASTERLINE®



Planning a new Lawn

PREPARING THE GROUND

After removing all the stones and other rubbish from the lawn area, prepare the ground. The better prepared the seedbed, the better the lawn will be. Good drainage is important and deep digging will help.

For lawns on heavy soil add more sand. Drainage will be improved. If the soil is light or sandy, work in a good amount of peat to give body to the soil and prevent drying out and loss of nutrients. At this stage, any levelling should be done and care must be taken not to remove too much topsoil from any one area. Subsoil does not make for a good seedbed! It is low in nutrients and will give variations in growing habit and colour.

The initial digging of the ground should be done during autumn if possible and the soil left "as dug" in large lumps during the winter. This will enable rain and frost to break down the soil and make it crumbly. Prepare the seedbed in the spring, when the soil is starting to dry out. Roll or rake the ground, or tread it down and rake it. First go one way across the area, rake it over then firm and rake it again, until a firm seedbed is achieved.

Finally a pre-seeding fertilizer should be raked into the soil. This will stimulate root growth and provide the essential early feed to get the lawn off to a good start.

SOWING

When to sow: DLF-TRIFOLIUM's lawn seed mixtures can be sown any time from early spring to early autumn, providing that in periods of dry weather the seedbed is kept constantly moist until the grass is about 5 cm.

Always water with a fine spray – a strong waterjet will remove the seeds! During periods of drought constant watering may be necessary to ensure establishment and to avoid scorching of the tender young seedlings.

There are many points in favour of autumn sowing. The ground is warm after the summer, there tends to be more moisture about, the seed will get off to a good start before the winter and weeds will be minimal. During the autumn, a good root system will develop, as opposed to top growth, and the lawn will be ready to withstand hot, dry spells in spring and summer.

How to sow: For a good establishment 3-4 kg of seed per 100 m² is recommended. An easy way of sowing the seed is to divide the area into easily manageable sections and then divide the seed into as many lots as there are sections. Then sow half the seed for one section, from left to the right of the section and then the other half across the first sowing, from the front to the back of the section. This will help to ensure an even spray of seed over the area.



FEEDING YOUR LAWN

Apply a pre-seeding fertiliser to the seedbed a few days before sowing the seed or at the same day. Once the lawn is established, usually after the first 12 months of growth, it will require feeding regularly, both to ensure good establishment and also to keep it in first class condition. The lawn should then be fed once in early spring, again in midsummer and once more in autumn. Feeding in smaller portions (spoonfeeding) can also be recommended if done regularly, as it will maintain a more even growth of grass.

Fertiliser applied in early spring and mid-summer should have a good Nitrogen content to encourage growth and colour. Fertiliser applied in autumn should have lower Nitrogen content but a higher phosphate and potash content to encourage root growth and resistance to frost, drought and disease.

MOWING YOUR LAWN

When mowing the first times it is very important to allow good establishment of the grass. Cut the grass for the first time when it is 6-8 cm high. Trim lightly and gradually lower the blades to an ideal cutting height of 3-4 cm. Mow regularly but try not to remove more than a third of the growth at any time. Do not mow whilst the grass is wet. If the mower does not have a roller, then the lawn can be rolled after this first cut. This will encourage lateral growth thus making a more closely knit turf.

The best advice for mowing a lawn is "little and often". For the last few cuts of the year gradually raise the height of the blades, also in dry summer periods. When mowing regularly, cuttings can be left on the lawn. With fewer cuttings it is recommended to remove the cuttings and use it for compost or mulch.

WEEDS AND DISEASES

In general, no matter how good the preparation of the site is, some weeds will always appear. It is therefore desirable to leave the seedbed for a new lawn fallow for a few weeks. This will give weed seeds near the surface of the seedbed a chance to germinate. They can then be destroyed before the lawn seed is sown.

Many of the weeds appearing in a new lawn will be annual weeds and will disappear with mowing. Others that persist can be treated with a proprietary weed killer but only after good establishment of the grass.

While a new lawn is in its early growth stage, weeds may be pulled out by hand but if this is done, great care must be taken not to disturb the surrounding grass seedlings. Weeds can also be cut out with a sharp pointed knife.

Established lawns can be treated with weed killer anytime from May to September but not during periods of drought as the weed killer will not be effective and may scorch the lawn.

Moss - This is usually the biggest problem of all and can be caused by a number of factors. Lack of fertiliser, mowing too close, poor drainage, shade, dripping from trees, over-rolling, compaction, lime shortage, and too little topsoil. To get rid of moss, first find out which of the above factors is causing the problem and then rectify the matter. A proprietary moss killer can also be used.

Fusarium - This is a common lawn disease that can appear at any time, although autumn/winter is the most likely period. Patches of grass anywhere from 2-30 cm in diameter turn brown. Treat the patch and surrounding areas with a liquid fungicide. Do not use a high Nitrogen content fertiliser in autumn.

Corticium (Red Thread) - Usually associated with dry, sandy soil and a shortage of Nitrogen. Usually appears in late summer or autumn in patches that are small at first and which spread rapidly to 0,5 m or more in diameter.

It is recognised by tiny, thin, red needles projecting from the leaves of the dead grass. Treat the patches and surrounding area with a liquid fungicide and apply lawn sand in the spring.

Maintenance of a Lawn

In periods of drought, watering can help new and existing lawns. If really dry weather follows the sowing of grass seed, water the area with a fine spray, keeping the seedbed constantly moist until the grass is about 6 cm high. Once the lawn is established, sprinkle the lawn with plenty of water – enough to reach the roots - app. 30-40 mm at time. This will secure a deeper root system. A little water does more harm than good although it encourages growth, it also produces a shallow root system and a thin sward will result.

RAKING

Although relatively important it is hard work and normally one good raking a year, in the spring, is all that is needed. Use the special type of spring rake for this purpose, not an ordinary garden rake.

THE BENEFITS OF RAKING ARE:

- It moves the dead grass, which prevents drainage and stunts growth.
- It aerates into the crown of the grass plants.
- It sets up creeping weeds ready for mowing.
- It encourages the formation of new shoots.

SPIKING

Spiking can be done once a year but this too, is hard work and needs only to be done when renovating a neglected lawn or if the soil is badly drained or compacted. It is also desirable to spike the lawn prior to top dressing in the autumn.

Spiking can be done with an ordinary garden fork, with a special hallow-tined machine or with a solid spoke machine.

THE BENEFITS OF SPIKING ARE:

- It aerates to the grass roots.
- It improves soil drainage
- It stimulates the growth of new roots.
- It makes the lawn more resistant to drought in the summer.

ROLLING

Generally, rolling does more harm than good and, since most mowers have a roller on them, there is no need for further rolling. Only if the mower has no roller or is the hover type, should a roller be considered. The roller should not weigh more than 100 kg and should only be used in the spring when the surface is dry and the soil below damp.

Ensure worm casts, leaves, etc. are removed before rolling and do not use the roller as means of flattening out bumps.

TOPDRESSING

For a first rate lawn, apply a top dressing on an annual basis. The mixture is usually made up of peat, loam and sand. Minor hollows will be removed which have developed and an improved soil surface is gradually built up.

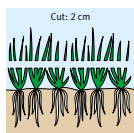
The layer of topdressing stimulates the formation of new shoots and promotes the development of runners resulting in a denser growth of grass.



Improve Existing Lawns by Overseeding

You can improve the appearance of existing lawns dramatically by overseeding. New grass retains its green colour longer in periods of drought because of better rooting than the old sward. Weed invasion is also minimized, as the sward gets denser. This will reduce the use of chemicals and is environmentally friendly.

The old sward will slowly die out over the years. By sowing new lawn seed into the existing lawn, a technique used by professional groundkeepers and known as overseeding, it is possible to rejuvenate the lawn. Overseeding can be done in spring or in early autumn. Early autumn is preferable as the soil temperature is high and moisture normally sufficient. At the same time there is less competition from the old sward towards the new young plants.



- ① Mow the lawn closely. Choose a time when the lawn is dry. Remove any rubbish from the surface of the lawn before mowing.



- ⑥ Feed the lawn with a quality lawn fertilizer (high Nitrogen in spring, low Nitrogen in autumn).



- ② Rake the lawn using a spring tine rake to remove and break up layers of dead matted grass or thatch. This process can be made easier using a machine.



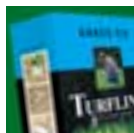
- ⑦ To get a dense grass growth and to remove minor hollows it is recommended to top dress the lawn with a mixture of sand, peat and loam.



- ③ If the ground is compact it needs to be loosened to improve the root growth and the drainage. It can be spiked with a fork to a depth of at least 15 cm. This job can also be done by machine on larger areas.



- ⑧ To improve germination the area should be raked. This ensures that the seed comes into contact with moisture and that the topdressing is worked into the grass. Lightly roll if possible.



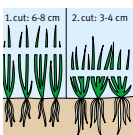
- ④ Select a suitable mixture of lawn seed. Ideally the mixture should contain the same species as the original old sward in order to avoid differences in appearance.



- ⑨ Irrigate if necessary with a fine spray keeping the seedbed constantly moist. After establishment irrigation should be restricted. Water between 30-40 mm at time to secure a deeper root system.



- ⑤ Mix the seed and sow by hand or machine. To ensure an even lawn the seed should be sown in two opposite directions. Mix the seed with sand to give a more even seed distribution. The seeding rate is app. 3,0 kg per 100 m². Make sure the ground is moistened thoroughly before sowing.



- ⑩ Mow with a high cut when the grass is 6-8 cm. Trim lightly and gradually lower blades to an ideal cutting height of 3-4 cm. Mow regularly but try not to remove more than 1/3 of the growth at any time.

Lawn Calendar 2006

MARCH/APRIL

Lawn maintenance starts. Before giving the lawn its first short cut, rake it lightly to remove surface rubbish. Rake thoroughly with a spring rake so that the grass and weeds are set up to meet the mower blades. Two light cuts just to "tip off" the grass are sufficient. Trim and neaten the edges of the lawn. If your mower does not have a roller on it, this is the time to roll the lawn when the surface is dry. This is also a good time for lawn restoration work (see overseeding).

JULY/AUGUST

Mow regularly – app. 3 cm or higher if dry and keep edges trimmed. A summer "tonic" feed may be applied during any showery spell.



APRIL

Give the lawn its spring feed and start weed control. Where moss is a problem, apply a moss killer. Mow the lawn weekly, reducing the height of the cut a little, although not below 3 cm. Cut out coarse grasses and keep the edges of the lawn trimmed.

SEPTEMBER

Decrease the frequency of mowing and start raising the cutting height to 4 cm. If any diseases are spotted, treat with fungicide. Think about spiking and top dressing, or the application of an autumn feed. Early September is the best time for lawn restoration work (see overseeding).

MAY

Increase frequency of mowing as necessary. This is the best month for weed control when the grass is dry but the soil moist. Water thoroughly if drought is apparent.



OCTOBER

Regular mowing stops this month, and the cutting height should be raised to a minimum of 4 cm for the last cut or two. Lawn repairs can also be undertaken this month e.g. levelling out bumps and hollows, reseeding bare patches, removing coarse grasses, etc. Rake away fallen leaves and worm casts with a light rake.

JUNE

Mowing the lawn twice a week may be necessary if the soil is moist. If on the other hand there is a long dry spell, raise the height of the cut (app. 4 cm) and mow once a week or less. If weeds remain after initial treatment, repeat the process although not during a long dry spell. Keep edges trimmed and water copiously in long dry spells.

NOVEMBER

A topping cut may be necessary, with the blades set high. Rake away leaves and worm casts with a light rake.



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