

Tim Lewis  
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We gardeners depend on small engines to help us with our gardening chores. These engines need attention at times in order for them to function at their best capacity. One of the main things these engines require is lubrication. This article is about just that-what oil does for your lawnmower, tiller, or other small engine.

The best thing we can do to keep our mowers and other small engines running well is to change the oil on a regular basis. Considering all that oil does, it is the least expensive thing we can do to prolong the life of our engines.

Engine oil does four things. It lubricates engine parts, reducing wear; it cools the engine; it seals spaces between the cylinders and rings, preventing compressed air from escaping; it cleans the engine by carrying away the by-products of combustion.

Oils contain certain additives which extend engine life. Additives perform the following functions: **Anti-corrosion additives** simply give metal engine surfaces protection from corrosion. **Oxidation inhibitors** help keep oil from absorbing oxygen, which would cause the oil to form engine-damaging sludge. **Anti-rust additives** coat metal parts with a water-repellent surface that helps prevent rusting during storage. **Detergent additives** keep carbon and oxidized oil in suspension so that deposits do not accumulate in the engine. Black oil is dirty oil and a sure sign that its time for a change. Oil should be changed in a new small engine after the first five hours of operation, then after every 25 hours.

Another important trait of an oil is its viscosity. Viscosity is the ability of a liquid to flow. Fluids with a high viscosity flow very slowly or hardly at all, while low viscosity fluids flow quite freely.

The Society of Automotive Engineers (SAE) has developed standards for oil viscosity. Multiple-viscosity oils, used in areas of the country with wide temperature ranges, come labeled with numbers like SAE 10W-40 or 5W-30. The "W" means that the oil tests at zero degrees Fahrenheit and will operate satisfactorily in cold weather.

Since most lawnmowers and tillers are not used in the winter, most small engine manufacturers recommend SAE 30. If you operate a machine in temperatures greater than 32 degrees with multiple viscosity oil, increased oil consumption and combustion deposits could result.

Service ratings are also a characteristic of oils. The service rating is an important indicator of oil quality. The American Petroleum Institute (API) tests how well various oils perform under heavy use conditions and then gives them service ratings. Most small engine manufacturers recommend SF oil, which is shown on the label as "API Service SF." The lowest rating is SA; the scale increases to SB, SC, and up to SF.

Regular engine oil checks are a good idea. Never overfill the engine with oil. Oil filters should be changed about every 100 operating hours. When changing oil, be sure to dispose of used oil properly; never put in a storm sewer, drain, or in any container that will be taken to a landfill.

Lubricating your small engine is an easy but critical task. If you treat your engine well and give it fresh oil regularly, you will benefit from its smooth performance year after year.

*Tim Lewis is a Georgia Green Industry Association Certified Plant Professional, gardening writer, former Perry High School horticulture instructor, and former horticulturalist at Henderson Village and Houston Springs. He and his wife, Susan, own and operate Lewis Farms Nursery located on Hwy 26 two miles east of Elko, where he was born and raised. He can be reached at (478)954-1507 or [timlewis1@windstream.net](mailto:timlewis1@windstream.net) and at [LewisFarmsNursery.com](http://LewisFarmsNursery.com).*

