Oil Fractions And Their Toxic Effect On Plants When Used As Weed Killing Sprays Explained

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In contrast to sprays in water solution, oils wet plant surfaces readily and tend to spread as thin films and run down over the leaves. The oil coats the crown of the leaves where growing weeds are usually located. If an oil spray wets the tops of the leaves to the extent that they cannot dry off before the next shower, which new shoots might grow. This accounts for the satisfactory results usually obtained with Diesel and kerosene-oil sprays, both of which must be used on a standard of weed killing.

Properties of Oils

To the grower, who must use oils in controlling weeds, it is important to know something about the oils and effects on plants. In this way he will be able to choose the best oil for his needs.

In the oil trade, all oils are described by sets of specifications. These are either required by law or used by the manufacturer as a standard of quality for his product. Every product must meet the specifications which his manufacturer has set up for it. These standards are intended to show a producer’s ability to do the job for which it was made. Certain oils not being tested as weed-killing sprays were not really intended for this use. Thus specifications listed for these oils do not necessarily show how well they will act as weed killers.

There are no specifications for weed-killing oils. The only sure way to find out if an oil is useful as a weed killer is by tests in the field. Hence, in buying oil, the grower must have to rely on the ability of the oil company to supply a satisfactory product.

This circular lists some of the properties which are important in weed-killing oils. They determine, in part, how well the oil will kill plants.

Gravity

The gravity, or density of an oil has to do with its weight. It is expressed in degrees A.P.I. because the gravity of oils in the United States is determined in tests set up by the American Petroleum Institute. The gravity of an oil is found by use of a special instrument called a hydrometer. This is a glass tube with density markings on the side and a bob at one end. The tube is filled with the sample oil and tested, and the depth to which it sinks, as indicated by the bob, is the measure of the gravity of the oil.

The bob does not sink so far in heavy oils as in light ones. The degrees are marked on the tube in such a way that gravity readings of heavy oils are lower than those of light oils.

Gravity is important in choosing a weed-killing oil. The solvents which fall below 30° A.P.I. will kill plants as well as Diesel. For use as thinners, however, they have their limits because of their volatility.

Flash Point

The flash point indicates the inflammability of an oil. One of the tests frequently made by the grower is the Pennsylvania closed cup test. The oil is heated in a closed container which has a small opening for air to enter and a small opening for air to exit. The temperature of the oil is raised slowly until the air from the opening ignites it. This is the flash point of the oil.

Flash points are very low for volatile oils. The temperature at which the oil ignites is not the temperature at which the oil vapor ignites. This is the flat point. Volatile oils ignite at very low temperatures. All gasoline flash at ordinary temperatures—for instance, 30°F—in fact, they will flash at freezing temperature for water. However, for the gas engine or the oil burner, it is dangerous to use gasoline as a fuel for these applications.odore of new shoots might grow. This accounts for the satisfactory results usually obtained with Diesel and kerosene-oil sprays, both of which must be used on a standard of weed killing.

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