

IS RIDOMIL RECOMMENDED WHEN SEEDING ALFALFA?

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Summary

Ridomil 2E® fungicide received a federal label in 1991 for control of seedling diseases of alfalfa caused by *Pythium* and *Phytophthora* fungi. *Pythium* fungi are widespread in Kentucky soils but can be controlled with Apron® seed treatment. *Phytophthora* is less common in Kentucky soils. Where present, *Phytophthora* can usually be controlled with a combination of resistant varieties and Apron seed treatment. Occasionally, yield increases may be observed using Ridomil in fields highly infested with *Phytophthora*. However, broadcast applications of Ridomil at seeding are not recommended for most alfalfa fields in Kentucky.

Introduction

The fungicide Ridomil 2E® received a federal label in 1991 for control of certain seedling diseases of alfalfa. Ridomil 2E can be applied at planting as a broadcast surface spray or impregnated onto dry fertilizer. As of this writing, the product is labelled for use at rates from 1 to 4 pints per acre. The label indicates that 1 pint should be used if the seed was treated with Apron® fungicide; otherwise, 2-4 pints are indicated. See the label for current application rates and restrictions.

Diseases Controlled Using Ridomil

The active ingredient in Ridomil is metalaxyl, which is toxic to *Pythium* fungi and *Phytophthora medicaginis* (hereafter referred to as "*Phytophthora*"). *Pythium* and *Phytophthora* are soilborne fungi that can infect alfalfa when the soil profile is saturated.

Pythium fungi are found in most agricultural soils in Kentucky, and a number of species can cause damping off of alfalfa seedlings when soils are saturated. Plants become resistant to the damping off phase after a few weeks of growth.

Phytophthora can also cause damping off of alfalfa seedlings during the first few weeks of growth. Even *Phytophthora*-resistant varieties are susceptible to damping off caused by this fungus, since resistance to *Phytophthora* does not develop for the first few weeks following seed germination. In contrast to *Pythium*, established alfalfa plants do not have resistance to *Phytophthora* unless a *Phytophthora*-resistant

variety was selected. Therefore, root rot and stand loss caused by *Phytophthora* can occur any time the soil is saturated and soil temperatures are appropriate. Where present, *Phytophthora* root rot can be a destructive disease in a susceptible alfalfa variety. However, most fields in Kentucky are not infested with *P. medicaginis*--the fungus has been detected in only 9% of Kentucky alfalfa fields sampled to date.

Reasons For Applying Ridomil

Pythium and *Phytophthora* are active in when soils are saturated with water. Saturation of soils is a common phenomenon during the spring in Kentucky, both because of high monthly rainfall totals as well as low evapotranspirational demand. Metalaxyl, the active ingredient in Ridomil fungicide, is highly active against diseases caused by *Phytophthora* and most species of *Pythium*. Therefore, there is a potential for occasional increases in yield of alfalfa in fields where these fungi are limiting establishment and growth.

A few studies in other states have shown increased alfalfa yield with an application of Ridomil at planting, though this has not been consistent from year to year at any test site. Occasionally, growers in Kentucky may experience improved yields, particularly in the following circumstances: (1) poorly drained fields where the soil is highly infested with *Phytophthora*; or (2) fields planted no-till in the spring, where the soil may remain cool and wet for long periods.

Reasons Against Applying Ridomil

Pythium fungi are very common in Kentucky soils, but generally do not limit alfalfa stands after the first few weeks of growth. Apron seed-treatment fungicide contains metalaxyl (the same active ingredient as in Ridomil), and will provide several weeks of protection against *Pythium* fungi. In the large majority of fields in Kentucky, Ridomil is not expected to provide any more protection from *Pythium* infection than that provided by Apron seed treatment. Apron seed treatment is vastly less expensive and, as a seed treatment, has virtually no environmental impact.

While *Phytophthora* root rot is a very destructive disease, most alfalfa fields are not infested with *Phytophthora*. To date, *Phytophthora* has been detected in only 9% of alfalfa fields surveyed in Kentucky. Therefore, most alfalfa fields in Kentucky do not need fungicidal protection against *Phytophthora* root rot. Even in fields infested with *Phytophthora*, studies have shown that high alfalfa yields can be achieved using a combination of Apron seed treatment and varieties with a high level of resistance to *Phytophthora* root rot. Apron seed treatment generally provides sufficient short-term protection against the disease, and varietal resistance provides long-term protection.

While yield increases have been documented with Ridomil in a few soils, many studies, including our own at UK, have shown no significant improvement in growth

of alfalfa as compared to the recommendations given below. Furthermore, there are many causes of poor stand establishment against which Ridomil provides no protection. Examples of these include: *Rhizoctonia* damping off, *Aphanomyces* root rot, damping off caused by *Pythium* species that are insensitive to Ridomil, as well as a variety of non-infectious disorders.

Recommendations For Controlling *Pythium* and *Phytophthora*

Apron seed treatment is recommended to protect against *Pythium* damping off of alfalfa.

Recommended practices for protecting against *Phytophthora* root rot are as follows. Always plant Apron-treated seed of an alfalfa variety with at least moderate resistance (MR rating) to *Phytophthora* root rot, to protect against an undetected infestation of *Phytophthora*. Varieties with at least moderate resistance are recommended even if the grower has not detected the disease in his fields, as it can build up to destructive levels before the problem is diagnosed. If *Phytophthora* root rot has been detected on a farm, plant only Apron-treated seed of a variety with resistance (R rating) high resistance or (HR rating) to *Phytophthora* root rot, and rotate away from alfalfa where possible.

Broadcast applications of Ridomil at planting are not recommended for most alfalfa fields in Kentucky.