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Sod-Seeding Orchardgrass Into Established Alfalfa

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Overseeding, or sod-seeding, a legume into unproductive grass pasture or hay fields is a commonly recommended method of improving forage quality and yield. Much less common but sometimes equally beneficial is the reverse sequence — i.e., seeding a grass into an established legume stand. Specifically, we are referring to the practice of sod-seeding a cool-season grass, such as orchardgrass, into an established stand of pure alfalfa.

**ORCHARDGRASS SOD-SEEDING—WHY AND WHEN**

There are several reasons for producers growing pure stands of alfalfa. Some raise it for dehydration; others feel it's most desirable for milk production. And the recently-developed technique of 'clear seeding' alfalfa, involving application of the herbicides Balan or Eptam, dictates that only alfalfa can be seeded since these particular materials kill many-grasses.

Apart from these situations, however, pure alfalfa stands usually do not provide the advantages that alfalfa-grass mixtures do. Among the benefits of including grass in a mixture with alfalfa are: (1) better protection against soil loss, (2) reduced winter heaving of alfalfa, (3) less lodging of the alfalfa, (4) less weed invasion, (5) reduced bloat hazard, (6) more rapid curing of hay, (7) easier preservation when stored as silage, and (8) more preferable as hay for horses.

Overseeding established alfalfa with orchardgrass seems desirable in at least two situations. One is when the alfalfa stand has aged to the point that its natural thinning process begins to noticeably affect productivity. The other situation is when a clear-seeded alfalfa stand is old enough that there would be no residual effect from the herbicide applied at seeding and grass can now be safely sown.

**PURDUE'S SOD-SEEDING EXPERIMENT**

Being a relatively new and rather limited practice, there was little information as to the feasibility of seeding orchardgrass into established alfalfa, at least under Indiana conditions. Therefore, a research experiment was set up at Purdue University's Agronomy Farm near Lafayette to determine feasibility and develop management suggestions.

In the study, three methods of overseeding Hallmark orchardgrass on a 5-year-old stand of Tempo alfalfa were compared. The orchardgrass seeding rate was 10 pounds per acre. The three methods were as follows:

- **Method 1**—seeded with a Nordsten grain drill on September 24, 1975.
- **Method 2**—frost-seeded (broadcast) on March 26, 1976.
- **Method 3**—seeded with a John Deere Powr-Till seeder April 2, 1976.

Orchardgrass tiller counts were taken following the first cuttings in 1977, the grass's second growing season. No stand evaluation was made in 1976, because the spring-seeded seedlings were slow to establish. However, it was noted that the September 1975-seeded grass made vigorous growth in 1976, indicating successful establishment.

Here, then, are the results of this experiment and their interpretation.
Seeding Time

Table 1 shows that all three methods of seeding resulted in successful establishment of orchardgrass into the alfalfa. In fact, the 10-pound-per-acre seeding rate for the late summer and spring seeded grass (Methods 1 and 3) may have been too high, as evidenced by the vigorous competition with alfalfa observed during the 1976 growing season.

Based on the 1 year's data reported in Table 1, it would appear that late summer is better than spring for seeding orchardgrass into an established alfalfa stand in Central Indiana. One factor favoring late summer seeding is the combination of cool temperatures and adequate rainfall. Then too, there is less competition at this time for moisture, nutrients and sunlight, because alfalfa makes its most vigorous growth in the spring.

Generally, late summer seeding of orchardgrass is not recommended in the northern portion of the Corn Belt, due to the seedlings' lack of winterhardiness. However, in this experiment, there was no evidence of seedling winterkill. Quite possibly, the established alfalfa plants provided some microclimatic protection. But that aspect needs further investigation.

Seeding Rate and Method

From the study, it would seem that a seeding rate of 5 pounds per acre is adequate for late summer orchardgrass overseeding, 10 pounds per acre for frost seeding, and 5-7 pounds for spring drilling.

Both the Nordsten grain drill and the Deere Powr-Till seeder provided 1/4-3/4 inch soil coverage of the orchardgrass seed. This is probably advantageous in establishing a cool-season grass.

Table 1. Effect of Method of Seeding Orchardgrass in Established Alfalfa on Orchardgrass Tiller Population (Counts Taken June 1977).

<table>
<thead>
<tr>
<th>Seeding time</th>
<th>Orchardgrass* tiller count</th>
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<tr>
<td>Late summer seeded, 1975</td>
<td>120/sq. ft.</td>
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<tr>
<td>Frost seeded, 1976</td>
<td>58/sq. ft.</td>
</tr>
<tr>
<td>Spring seeded, 1976</td>
<td>88/sq. ft.</td>
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*Average of 3 replications.

Fertilizer Needs

One of the major causes of thinning of alfalfa stands is lack of sufficient potassium (K). Since orchardgrass is more efficient than alfalfa in absorbing K, it may be necessary to make liberal application of this nutrient each year. Otherwise, the grass will crowd out the remaining alfalfa plants.

A ton of grass alfalfa hay removes 50-60 pounds per acre (or more) of K2O. This fact, along with a soil test, should be an adequate guide in applying K fertilizer to an alfalfa-orchardgrass stand.

A WORD OF CAUTION

While the above results indicate the feasibility of sod-seeding orchardgrass into alfalfa, do remember that they represent only one experiment at one point in time in one location and under one set of environmental conditions. Further research and farmer experience are needed before the full value of this practice can be assessed and management recommendations confidently made. However, the findings reported here do provide a starting point from which to evaluate its potential in your situation.