

Oats as a Cover Crop for Alfalfa

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Historically, most alfalfa in the Midwest was seeded with oats as a cover (nurse) crop. The oats provided straw which was used widely for bedding and grain to feed horses or as a cash crop.

However, things have changed as larger, newer barns are less likely to use straw for bedding and the oat grain has remained low in value, particularly relative to hay. The result has been a dramatic decline in oat acreage in the Midwest. The use of oats as a cover crop has declined from nearly 100% of the seeded alfalfa to less than 40% of seeded alfalfa.

Nonetheless, oat is still an important cover crop for alfalfa and a few principles of using it as a cover crop should be reviewed.

First, while most oats has been grown for grain, this has never been recommended because of damage to the alfalfa stand. However, many farmers have done this because oat silage is a low palatability forage and difficult to work into a dairy cow ration. When letting oats go to grain, seeding rate can have a big impact on the alfalfa stand and yield. Highest grain yields generally result from oat seeding rates of 2 to 3 bu/a. Highest forage yield for silage is a seeding rate of 1.5 bu/a. There is generally no weed control advantage to seeding oats at more than 1 bu/acre. However, a seeding rate of more than 1 bu oats per acre will hurt the alfalfa more. Further, the alfalfa, when severely stressed in the seeding year, will yield less in all future years as shown by the data in Figure 2 where ryegrass seeded at more than 4 lbs/a reduced yield of alfalfa in the next year. Therefore, the farmer must decide between more oat grain or forage yield versus future alfalfa yield. The loss in oat grain or forage yield from lower seeding rates is worth significantly less than the loss in future alfalfa yield from higher seeding rates of the cover crop.

Many other cover crops have been used to seed with alfalfa; the most common are barley and triticale. Barley is perhaps a better cover crop if letting the small grain grow for grain since it matures a week or more earlier than oats. The sooner the grain crop is removed, the less injury is done to the alfalfa underneath. However, it is somewhat more difficult to grow than oats. Triticale tends to mature later than barley and is harder on the underseeding of alfalfa.

When considering other small grains, barley yields slightly less than oats (though protein content is higher) and triticale and oat yields are comparable depending on variety.

Adding peas to the silage mixture will not affect yield but will increase palatability and lower fiber content. However, peas are an expensive component and the value of the improved quality is approximately equal to the cost of the additional seed. A seeding rate of 45 lbs oats (1.5 bu/a) and about 50 lb peas for maximum economic return is recommended.

Figure 1. Effect of oat seeding rate on forage and grain yield.

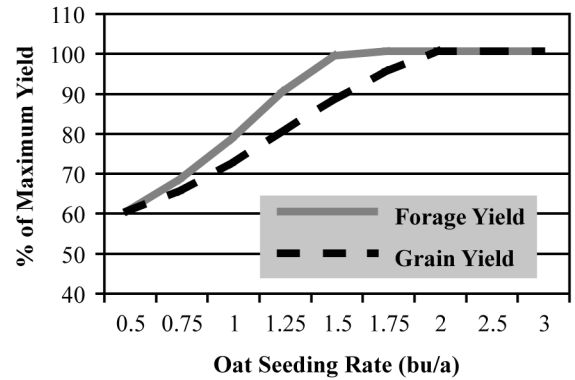


Figure 2. Effect of ryegrass cover crop seeding rate on next year alfalfa yield.

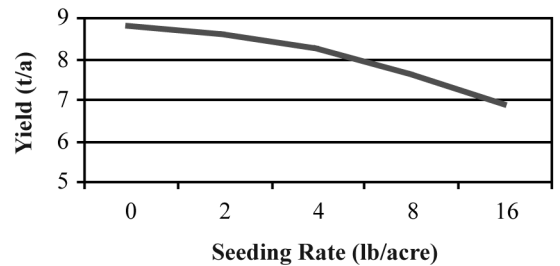


Figure 3. Effect of oat (var Porter) and pea (var Trapper) seeding rate on forage NDF.

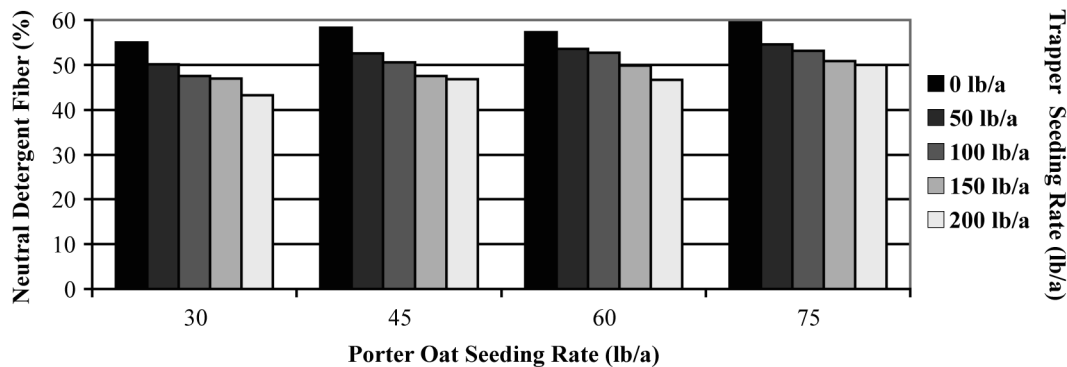


Table 1. Average forage quality values for oats harvested at different maturity stages.

Harvest Stage	Crude Protein	NDF
Boot	16-18	52-54
Heading	14-16	56-58
Milk	12-14	59-61
Dough	10-12	59-61

Data in Table 1 show the decline in forage quality as oats mature. Oats should be harvested at the boot stage (head at top of leaf whorl) for dairy cattle and at the soft-dough stage for other classes of animals.