

## RYE STRAW MULCH

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**ABSTRACT:** Various kinds of grain straw have been used for nursery seedbed mulch for many years. This is an accounting of how to successfully produce and apply rye straw to seedbeds both for covering seed and over-wintering 1-0 stock.

Rye straw has been used for mulching freshly seeded seedbeds and for the over-wintering of 1-0 pine seedlings. The Augusta Forestry Center in Virginia has been doing this for sixteen years. A mulch seems to be necessary for some species and where soils are very heavy. Virginia has two other nurseries, (Sussex and New Kent), which have very sandy soils. Both produce mainly loblolly pine and do not use mulch. Studies at the New Kent Nursery have shown no need for mulch.

Rye straw can be freshly baled, or it can be baled and stored. Experience indicates that freshly baled, but not completely cured, straw is not desirable to use. Straw that has been stored for a year or two is best. Good rye straw is expensive in that it should be manufactured for the sole purpose of use on seedbeds. Rye straw produced as a by-product of a farm-grain-operation is really not acceptable unless it is fumigated. The straw should be produced by cutting clean fields of rye just before the heads bloom. If this is done the rye will be course stemmed, free of grain, and free of weed seed. An acre of good rye should produce 100 to 200 bales per acre. A rule of thumb -- one acre of rye for each acre to be mulched.

The following is a list of things necessary to carry out a low labor, intensive, rye straw operation. (This is based on 3500 bales used annually and a 100 bales per acre rate).

1. Land -- with farm crop ph (6.0 to 7.0) and average fertility
2. Plow, disk, fertilizer spreader, drag or land leveler, and grain drill
3. Seed -- certified as weed free

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4. Sickle mower
5. Side delivery rake
6. Baler with twine
7. Wagons -- equipped with rear hitch
8. **Storage sheds -- tarps are undesirable**
9. Mulch blower -- the Finn Bantam could be best
10. Mulch-binder or nets to hold straw in place. Tar was tried, but **was impossible because of the mess.**
11. Pitch forks to pick up the straw when its purpose is fulfilled. **We tried a vacuum, but wet straw is impossible to vacuum.**

The use of rye straw mulch is expensive when expressed on a per acre basis. In Virginia an acre mulched with rye straw, (when you include labor), costs around \$600. It costs another \$600 for removal and disposal. Of course, if applied in the proper manner, very little straw has to be removed from beds mulched as 1-0 over-wintered stock. This removal cost is less than for mulched seedbeds. In comparison, pine needles cost approximately \$1200 to purchase and apply and does not have to be removed. Weeds are a problem with pine needles.

Rye straw works best if it is applied to seedbeds at a rate that will settle down to a heavy mat of one to two inches. When it is of this thickness it tends to stay moist, thus it will stay in place. Nets can be used successfully to hold straw in place and can be put in place easily and fast; however, they are expensive and time consuming to take up and re-roll. Severe wind storms can be difficult.

Three things have contributed to the successful use of rye straw mulch in Virginia. Our determination to make it work - the existence of the Finn Bantam Straw Blower - and lastly the use of Dow Mulch-Binder, (which is no longer available). A four year supply of binder is on hand, and when this is used up changes will have to be made -- perhaps we may be forced to move to a very sandy soiled nursery site or use another kind of mulch.