



Forage Management

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October, 1995

Small Grains as Forage Crops

Annual small grains such as oats, barley, rye, and wheat are productive, high quality forages. They play an important role in livestock production on the national level. Many lightweight calves are grazed over the winter on the acres of wheat pasture in the midwest before going into southwestern feedlots. In the south, rye and winter oats are often grown to provide winter grazing for cattle and sheep. Small grains have potential for providing early spring grazing, additional hay or silage, or supplemental summer grazing. They can be of help in pasture or hay land renovation by providing forage and reducing soil erosion while establishing a new seeding.

The annual grains of most value in West Virginia are spring oats, winter barley, rye, winter wheat, and triticale. Spring oats are a common crop in the state and well adapted to our climate and acid soils. Rye is also well adapted to our climate and the best cereal crop for acid or wet soils. It produces good early grazing and gives a field very good erosion protection over winter. If grazing dairy cows on rye, they should be removed 3-4 hours before milking to prevent off-flavored milk. Some rye varieties, like Balbo, are reported not to cause this problem.

Triticale is a hybrid between wheat and rye. Triticale varieties adapted to our area are highly productive. Some varieties are more tolerant to acid, wet soils like the rye; but other varieties are more like wheat requiring higher pH and better drainage. Because of its wheat parentage triticale is less likely to cause off-flavored milk and may be more palatable than rye.

When planted for forage production, annual cereals should be fertilized and managed as for a grain crop. For best production oats should be planted from late March to early May, depending on elevation. Rye,

wheat, barley, and triticale are normally planted in the early fall. Rye and some triticale tolerate acid soils so they do not need a high pH. They can be grown on acid sites while applied lime has a chance to react with the soil for the growth of perennial legumes and grasses which may be planted afterward. Wheat and barley are more sensitive and should be planted on soils which are better drained and have a pH from 6.0 to 6.5 or above.

Legumes and perennial grasses can be frost seeded during the winter or no-till seeded into the stubble after chopping the forage for silage or after grazing. Such sites are very well adapted to no-till seedings. For spring seeded oats the perennial forages can be under-sown at the time of seeding the oats.

Soils should be tested to ensure that adequate phosphorus and potassium are applied at seeding time to provide for the small grain forage and the new permanent seeding. On low fertility soils 60 pounds of nitrogen, 85 pounds of phosphorus, and 70 pounds of potassium are needed if the stand is under-seeded to a perennial forage.

Forage yields and quality are highly dependent on soil fertility, soil moisture during growth, and growth stage at harvest. For winter barley or spring oats, a late boot to milk stage of growth will provide the highest production of palatable, high-quality forage. At these growth stages, 1.5-2.5 tons of dry matter per acre can be harvested depending on fertility and harvest management. Digestibility will be between 58 and 67% TDN and crude protein will range between 10 and 16% (Table 1). If nitrogen is not adequately supplied from soil organic matter or commercial fertilizer, yields and crude protein content will be lower. The other small grain crops will give similar or higher yields. Rye should be chopped in the late boot stage or can be

grazed in the late jointing to early boot stage of growth. Rye will become less palatable if allowed to mature too far. For early spring grazing, rye should be planted on drier fields so that wet soils do not prevent grazing at the proper growth stage.

a little more silage or pasture in early spring consider growing a small grain for a cover crop which will reduce erosion during winter. Or during the spring establishment of a perennial forage seeding, consider growing a small grain nurse crop to control weeds and provide additional forage or mid-summer grazing.

If you have land open after harvest or if you could use

Table 1. Forage quality of small grains harvested for silage as measured by the Northeast DHIA Forage Testing Laboratory.

Forage	No. ¹	DM	CP	ADF	NDF	TDN
Barley	115	35 ± 9 ²	12 ± 3	36 ± 6	56 ± 7	64 ± 5
Oat	354	36 ± 11	14 ± 3	39 ± 5	59 ± 6	61 ± 4
Rye	193	33 ± 10	14 ± 3	37 ± 5	58 ± 7	63 ± 4
Triticale	61	32 ± 10	15 ± 5	38 ± 5	57 ± 9	62 ± 4
Triticale/pea	455	36 ± 10	17 ± 3	37 ± 4	53 ± 6	62 ± 3

¹ Number of samples analyzed.

² Mean plus range which contains 67% of observations (± 1 standard deviation).