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 Field Crops 26.5
 August 1993

Small Grains for Fall and Spring Forage

Small grain crops such as oats, barley, triticale, wheat, and rye may be source of emergency fall forage and/or a source of forage the following spring. The choice of which specie to plant depends on the importance or need for forage in the fall as opposed to forage in the spring.

Preliminary studies conducted in 1989 by UW agronomists compared 20 different combinations of spring oats, spring barley, spring triticale, winter triticale, winter wheat and winter rye, are summarized in Table 1. Winter and spring specie were seeded alone and in combinations. All specie were seeded Aug. 16 at 36 seeds/aq/ ft/ (3bu/acre) when seeded alone or at 1 ½ bu/acre when seed in combinations. In 1992 these studies were expanded to include 32 different combinations using the same specie. Trials were planted at the Arlington and Marshfield Ag Research Stations on 18 Aug. and 19 Aug., 1992, respectively, using seeding rates similar to the 1989 study. In all studies, fall forage was harvested in mid-October following killing frosts, and spring forage was harvested at early heading for each specie.

Table 1. Forage yield and quality of small grains planted on August 16 at Arlington, Wisconsin and harvested in October. Means are averaged across varieties¹

Specie	Height at Harvest	BYDV	Fall Forage Yield	CP	ADF	NDF	RFV
	In.	0-9	t/a	%	%	%	
Spring Oats	20	2.8	1.21	10.0	23.4	44.6	148
Spring Barley	19	7.0	1.22	10.5	27.3	53.5	118
Spring Triticale	17	1.5	0.94	13.3	25.1	48.0	135
Winter Wheat	10	3.7	0.59	12.7	21.2	43.1	156
Winter Rye	5	1.0	0.09	15.4	158.5	33.9	211
Winter Triticale	6	1.0	0.26	14.6	17.4	37.6	186
W rye/Sp oat mix	16	2.0	0.89	10.8	21.1	40.0	169
W wheat/Sp oat mix	16	3.0	0.93	1.04	21.3	41.0	164

¹ Data from research conducted by M.A. Brinkman and K.A. Albrecht, Department of Agronomy UW-Madison.

Table 2. Fall and Spring forage yield of small grains seeded in August 1992 at Arlington and Marshfield, WI.

Specie	Forage Yield (tons/DM/acre)		
	Fall	Spring	Total
Spring Oat ²	1.04	0	1.04
Spring Barley ³	1.21	0	1.21
Spring Triticale ⁴	0.94	0	0.94
Winter Wheat ⁵	0.68	2.40	3.09
Winter Rye	0.37	3.22	3.59
Winter Triticale	0.31	2.16	2.48
Winter Rye/Sp Oat	0.85	2.06	2.92
Winter Rye/Sp Barley	0.97	1.76	2.72
Winter Rye/Sp Triticale	0.81	1.96	2.77
Winter Rye/Sp grains (mean)	0.89	1.94	2.88
Winter Wheat/Sp Oat	0.85	1.64	2.49
Winter Wheat/Sp Barley	0.95	1.33	2.29
Winter Wheat/Sp Triticale	0.79	1.69	2.49
Winter Wheat/Sp grains (mean)	0.91	1.55	2.42
Winter Triticale/Sp Oat	0.73	1.34	2.08
Winter Triticale/Sp Barley	0.94	1.18	2.11
Winter Triticale/Sp Triticale	0.71	1.43	2.14
Winter Triticale/Sp grains (mean)	0.80	1.30	2.10

Some preliminary conclusions and recommendations from these studies are:

To obtain maximum total forage yields:

1. Winter rye or winter wheat have the highest total forage yield at 3 to 3.5 ton/acre. Of this 80 to 90% of the total yield is from a spring harvest. Winter rye has the advantage of more winterhardiness and earlier harvest in the spring. Winter wheat has the advantage of being left for grain in the spring and being marketed as a cash grain.
2. Seeding a spring grain with the winter grain reduces overall forage yields.

To obtain maximum fall forage yields:

1. Spring oats or spring barley are the highest at 1 to 1.2 ton/acre. Early maturing varieties like Dane and Webster oats or Chilton barley gave the highest yields.

² Mean of Dane, Webster, Horicon, Prairie, Ensiler, Bay

³ Mean of Chopper and Chilton

⁴ Mean of Plains and Companion

⁵ Mean of Cardinal and Argee

2. Seeding spring forage type small grains such as Ensiler oats or Chopper barley in late summer resulted in somewhat lower fall forage yields than using the earlier maturing grain varieties.

Mixing spring and winter grains:

1. Total forage yields are lower than that of winter rye or winter wheat seeded alone. However, the practice will give 0.8 to 1.0 ton/acre of fall forage plus an additional 1.5 to 2.0 ton/acre of forage in the spring.
2. Early maturing grain varieties like Dane oat or Chilton barley produced higher fall and total forage yields when mixed with winter rye, wheat or triticale than did medium or late maturing varieties.
3. If both fall and early spring forage is needed this practice would be recommended for Wisconsin producers.