PROJECT TITLE: Irrigated hard red and soft white winter wheat, yield and quality, off-station Hysham. 1989.

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PROJECT PERSONNEL: Ole Redlands, Hysham, MT - cooperator

PROJECT LOCATION: MSU- Southern Agricultural Research Center, Huntley, MT 59037

OBJECTIVES:

Evaluate hard red and soft white winter wheat varieties for economics of yield and quality. To evaluate soft white winter wheat varieties for adaptation and winter survival ratings for production in south-central Montana. To evaluate the use of soft white winter wheats as a feedlot ration in comparison to the traditional barley ration, (product economics and feed-to-gain evaluations).

SUMMARY AND RESULTS:

Soft white winter wheat selections were grown under dryland (Table 1) and irrigated (Table 2) managements. Redwin hard red winter wheat was included as a check variety. There were no significant differences in yield among the selections or Redwin grown on dryland. Percent protein of the soft white wheat was lower as expected compared to a hard red wheat variety. However, under irrigation, the majority of the soft white winter wheats significantly out yielded Redwin. The four triticale varieties did not perform well under the off-station irrigated site (Table 2). The results indicate that several new lines of soft white winter wheats, WA7166 and WA7163 performed exceptionally well in the irrigated trial.

Results of the irrigated hard red winter trial show that Norwin, Rocky, and Manning significantly out yielded other prominent Montana winter wheats.

FUTURE PLANS:

First, Note: that feeding trials were conducted using soft white winter wheat at SARC. The results are in the process of analysis. We will continue these studies for 2 more years, terminate, summarize and write up data.

TABLE 1 . *1989 DRYLAND SOFT WHITE WINTER WHEAT TRIAL SARC, HUNTLEY, MT.*

VARIETY	YIELD BU/AC	TESTWT LB/BU	HEAD DATE	PLANTHT INCHES	%WINTER KILL	PROT %
REDWIN HARD RED	41.92	56.90	164.33	33.17	.00	19.3
WA7166 SOFT WHITE	41.13	51.33	165.00	28.67	.00	15.6
NUGAINES SOFT WHITE	41.12	52.67	165.00	27.83	.00	16.3
OVESON SOFT WHITE	41.05	53.33	166.00	30.67	.00	17.3
CASHUP SOFT WHITE	39.60	50.50	164.33	27.00	.00	16.7
JOHN SOFT WHITE	38.83	55.37	166.33	29.17	15.00	16.5
LEWJAIN SOFT WHITE	38.67	54.37	167.33	26.67	18.33	17.8
DAWS SOFT WHITE	38.45	51.70	165.00	26.33	.00	16.6
WA7163 SOFT WHITE	38.18	51.90	165.33	28.33	.00	17.6
BASIN SOFT WHITE	37.07	50.60	166.00	23.33	.00	15.3
STEVENS SOFT WHITE	36.63	48.73	162.00	29.83	6.67	17.4
DUSTY SOFT WHITE	35.92	53.53	170.00	25.83	30.00	14.9
HILL 81 SOFT WHITE	35.28	51.83	167.67	30.67	.00	18.5
MALCOLM SOFT WHITE	35.17	48.73	163.33	28.67	.00	17.9
***** *STATISTICAL TABLE* *****						
EXPERIMENTAL MEANS	38.50	52.25	165.55	28.30	5.00	
TOTAL OBSERVATIONS	42.00	42.00	42.00	42.00	42.00	
NO. OF REPLICATIONS	3.00	3.00	3.00	3.00	3.00	
NO. OF VARIETIES	14.00	14.00	14.00	14.00	14.00	
C.V. 1: (S/MEAN)*100	17.43	3.08	.83	4.62	339.14	
C.V. 2: (S OF MEAN/MEAN)*100	10.06	1.78	.48	2.67	195.80	
LSD (0.05)	11.26	2.70	2.32	2.19	28.46	

DRSOFT89.WWD
DRSOFT.STT

TABLE 2 . **1989 IRRIGATED OFF STATION SOFT WHITE WINTER WHEAT TRIAL, HYSHAM.**

VARIETY	YIELD BU/AC	YIELD CWT/A	TESTWT LB/BU	PLANTHT INCHES	LODG PREV	LODG SEVER	LODG INDEX	PR
WA7166 SOFT WHITE	88.0	52.81	56.63	34.67	.00	.00	.00	11
WA7163 SOFT WHITE	87.0	52.18	56.93	32.33	.00	.00	.00	12
HILL 81 SOFT WHITE	83.4	50.03	56.27	34.67	8.33	5.00	4.67	12
OVESON SOFT WHITE	78.0	46.78	55.67	34.33	16.67	5.33	9.63	11
BASIN SOFT WHITE	77.8	46.70	53.60	29.33	16.67	3.33	9.27	11
STEVENS SOFT WHITE	74.9	44.92	56.13	33.67	8.33	4.33	3.90	12
LEWJAIN SOFT WHITE	73.6	44.16	54.63	33.67	66.67	5.67	38.53	11
DUSTY SOFT WHITE	72.0	43.20	54.63	33.67	38.33	5.00	20.00	10
CASHUP SOFT WHITE	71.3	42.76	54.07	33.00	10.00	3.00	5.00	11
DAWS SOFT WHITE	68.5	41.10	56.53	32.33	10.00	5.00	5.57	12
JOHN SOFT WHITE	66.9	40.15	54.07	31.67	99.00	5.00	55.00	11
MALCOLM SOFT WHITE	64.7	38.79	54.27	33.00	.00	.00	.00	11
NUGAINES SOFT WHITE	62.1	37.25	55.60	30.33	61.33	5.00	32.67	11
FLORA TRITICALE	74.1	37.03	42.03	31.33	35.00	5.00	18.37	12
WHITMAN TRITICALE	67.2	33.61	48.53	35.00	15.00	5.00	8.37	13
VT087501 TRITICALE	61.3	30.65	43.77	29.00	43.33	2.67	18.53	13
VT086497 TRITICALE	59.8	29.92	42.37	26.00	.00	.00	.00	14
REDWIN HARD RED	49.0	29.38	56.43	36.00	.00	.00	.00	15

******* STATISTICAL TABLE ******

EXPERIMENTAL MEANS	41.19	52.90	32.44	23.81	3.30	12.75
TOTAL OBSERVATIONS	54.00	54.00	54.00	54.00	54.00	54.00
NO. OF REPLICATIONS	3.00	3.00	3.00	3.00	3.00	3.00
NO. OF VARIETIES	18.00	18.00	18.00	18.00	18.00	18.00
REP. MEAN SQUARE	14.70	1.72	12.72	33.35	.30	18.93
VAR. MEAN SQUARE	158.74	76.81	18.902	380.64	15.17	718.81
ERROR MEAN SQUARE	5.04	2.12	3.37	439.43	2.26	143.45
ERROR DEGREES OF FREEDOM	34.00	34.00	34.00	34.00	34.00	34.00
F TEST FOR REPS.	2.92	.81	3.78	.08	.13	.13
F TEST FOR VAR.	31.51	36.27	5.61	5.42	6.72	5.01
STANDARD ERROR	2.24	1.46	1.84	20.96	1.50	11.98
STANDARD ERROR OF THE MEAN	1.30	.84	1.06	12.10	.87	6.92
C.V. 1: (S/MEAN)*100	5.45	2.75	5.66	88.02	45.58	93.94
C.V. 2: (S OF MEAN/MEAN)*100	3.15	1.59	3.27	50.82	26.31	54.24
LSD (0.05)	3.72	2.41	3.05	34.78	2.49	19.87

SOFTWH89.WWD
SOFTHY2.STT

TABLE 3 . *1989 OFF STATION IRRIGATED HARD RED WINTER WHEAT TRIAL, HYSHAM.*

VARIETY	YIELD BU/AC	TESTWT LB/BU	PLANHT INCHES	LODG PREV	LODG SEVER	LODG INDEX	PROT %
PI491533 NORWIN	73.52	58.87	29.33	66.00	1.33	14.67	11.7
CI 17879 ROCKY	69.42	58.03	35.00	21.67	5.33	11.70	12.2
CI 17846 MANNING	67.68	57.47	33.67	40.00	3.33	10.77	12.4
MT 88001 SMT/TD//YGSS	67.29	56.90	27.67	.00	.00	.00	13.8
CI 17441 VONA	66.58	59.53	33.00	53.00	4.33	15.87	12.9
*MT 88003 POLO/TURG//WRR	65.66	53.90	33.00	7.67	3.67	5.10	11.4
MT 79125 UT755079/CST56//TX65	64.51	57.77	31.00	26.67	3.33	9.07	13.0
*MT 88002 POLO/TURG//WRR	60.66	52.60	32.00	10.00	9.00	10.00	12.4
MT 88065 CST/VT1230//ID745101	54.04	55.57	33.00	13.33	7.67	11.13	12.2
QT 542 HYBRITECH	50.79	57.77	32.33	94.67	5.33	56.27	12.3
MT 8039 JUDITH	50.50	55.13	33.67	7.67	4.33	5.40	13.0
CI 17860 NEELEY	48.91	54.17	34.00	8.33	5.67	7.97	13.8
MT 88062 CST/VT1230//ID745101	48.51	55.67	33.67	78.33	3.33	26.87	12.4
MT 8003 TIBER	47.45	57.27	33.67	1.67	2.33	1.30	11.8
CI 17844 REDWIN	46.37	56.60	35.33	.00	.00	.00	13.3
CI 13190 WARRIOR	46.36	57.20	34.33	91.00	4.33	43.23	12.1
MT 88064 CST/VT1230//ID745101	46.15	53.43	33.00	30.00	3.67	9.27	11.5
CI 17727 WESTON	45.93	58.50	34.00	16.67	6.33	11.87	13.2
*CI 17902 WINRIDGE	45.16	53.77	35.00	17.67	6.67	12.27	12.1
*ID 297 BLIZZARD	44.89	54.60	37.67	97.00	5.00	53.90	11.8
CI 15075 CENTURK	42.97	57.57	30.33	36.33	2.33	19.07	12.9
PI491532 CREE	37.58	53.87	35.33	72.67	5.00	40.37	12.4
CI 13670 WINALTA	34.64	58.10	34.33	92.67	4.00	41.90	12.0
*CI 8885 CHEYENNE	33.25	52.60	36.00	67.00	3.00	24.70	11.4
MT 88008 WSC/YOGO//RSC/3/WRR1	31.22	55.27	34.33	99.00	6.67	73.33	11.9
*CI 17735 NORSTAR	29.12	56.30	37.67	22.67	5.00	11.50	10.5
*MT 88006 WSC/YOGO//RSC/3/TD25	26.07	53.60	36.33	57.00	2.67	15.33	12.6
MT 88005 WSC/YOGO//RSC/3/TD25	21.07	51.33	35.00	18.33	6.33	7.77	12.4
***** *STATISTICAL TABLE* *****							
EXPERIMENTAL MEANS	48.80	55.83	33.70	40.96	4.29	19.66	
TOTAL OBSERVATIONS	84.00	84.00	84.00	84.00	84.00	84.00	
NO. OF REPLICATIONS	3.00	3.00	3.00	3.00	3.00	3.00	
NO. OF VARIETIES	28.00	28.00	28.00	28.00	28.00	28.00	
ERROR MEAN SQUARE	20.02	2.34	4.88	593.34	5.21	95.88	
F TEST FOR REPS.	1.48	.39	1.32	4.38	1.32	4.88	
F TEST FOR VAR.	29.96	6.07	3.10	5.86	2.56	11.03	
STANDARD ERROR	4.47	1.53	2.21	24.36	2.28	9.79	
STANDARD ERROR OF THE MEAN	2.58	.88	1.28	14.06	1.32	5.65	
C.V. 1: (S/MEAN)*100	9.17	2.74	6.56	59.46	53.28	49.80	
C.V. 2: (S OF MEAN/MEAN)*100	5.29	1.58	3.79	34.33	30.76	28.75	
LSD (0.05)	7.32	2.51	3.62	39.88	3.74	16.03	

*THESE VARIETIES HAD AN AVERAGE USED ON ONE REP OF DATA.

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