

I. PROJECT TITLE: Evaluation of winter wheat, triticale, spelt off-station, Musselshell and Forsyth.

II. PROJECT LEADERS: G.F. Stallknecht, K.M. Gilbertson

III. PROJECT PERSONNEL: Phil Bruckner cooperators, Jack Merridith and Floyd Dahlman cooperators

IV. OBJECTIVE: To evaluate winter wheat, winter triticale, and winter spelt cultivars under various environments in south central Montana.

V. RESULTS: Forsyth - winter wheat yields ranged from 61 to 43 bushel/Acre, with the hybrid wheat, Hybritech 542 topping the yields of available varieties, however not statistically higher than varieties such as Centurk, Bighorn, Hawk, Manning or Judith. Test weights in 1994 were low at the Forsyth site ranging from 59-53.4 lbs/Bushel.

Two high yielding triticale cultivars, Presto from Poland, and a number selection from Oregon, significantly out yielded the winter wheats, 95 and 79 bushel/Acre respectively. Winter spelt yields ranged from yields equal to wheat to 65 percent that of wheat. Three spelt selections had total yields equal to wheat, however, when de-hulled, the spelt grain yield would be approximately 1800 lbs or 30 bu/Acre compared to an average of 50 bushel/Acre for wheat. The data for winter and alternate cereals, triticale and spelt are described in Tables 1 and 2.

Musselshell - the Musselshell site was essentially abandoned. Due to a extremely heavy infestation of wild oats, only one replicate of winter wheat and alternate cereals was harvested. Again, Hybritech 542 winter wheat and Presto triticale were high yielders, however the data was insignificant to analyze.

VI. SUMMARY: As in many of our other off-station and on station trials, Hybritech 542 winter wheat, and Presto winter triticale tend to dominate the yield trials. Often, the higher yielding triticales significantly out yield winter wheat. While the total yield (total lbs/Acre) of higher yielding spelt selections equal or are some times higher than winter wheat, grain yields average only 60 percent that of winter wheat. However, contract prices for spelt reflect the yield differential and spelt grains and flours command a high market price.

VII. FUTURE PLANS: To continue to conduct off-station winter wheat variety trials, and to evaluate alternate cereal grains for yield and quality in comparison to common wheats.

TABLE 1 . 1994 OFF STATION DRYLAND WINTER WHEAT NURSERY  
 FORSYTH, MT

| VARIETY               | YIELD<br>BU/AC | TEST WT<br>LB/BU | PLANT HT<br>INCHES |
|-----------------------|----------------|------------------|--------------------|
| MTS92042 LEW/TBR//RDW | 61.84          | 58.60            | 32.00              |
| QT 542 HYBRITECH 542  | 56.84          | 56.70            | 36.00              |
| PI564762 MT 8713      | 55.57          | 56.10            | 26.00              |
| CI 17940 ARCHER       | 54.44          | 56.10            | 26.00              |
| CI 15075 CENTURK      | 53.62          | 56.90            | 33.00              |
| MT 7811 MT 7811       | 53.58          | 57.40            | 32.00              |
| PI478771 AGASSIZ      | 52.06          | 54.70            | 39.00              |
| RH78W296 BIGHORN      | 51.84          | 57.60            | 28.00              |
| CI 17952 HAWK         | 50.96          | 56.30            | 25.00              |
| CI 17846 MANNING      | 50.74          | 54.90            | 34.00              |
| MT 8039 JUDITH        | 50.58          | 57.80            | 33.00              |
| S86-15 KESTREL        | 50.43          | 56.90            | 36.00              |
| MTSF2238 MTSF2238     | 50.07          | 53.40            | 31.00              |
| CI 17727 WESTON       | 49.40          | 57.60            | 40.00              |
| S86-736 S86-736       | 49.38          | 56.20            | 33.00              |
| CI 17879 ROCKY        | 48.55          | 57.40            | 33.00              |
| PI518591 ARAPAHOE     | 48.49          | 56.10            | 30.00              |
| CI 17735 NORSTAR      | 48.46          | 56.60            | 35.00              |
| CI 17902 WINRIDGE     | 48.18          | 54.90            | 34.00              |
| PI564761 MT 8719      | 47.65          | 56.80            | 30.00              |
| CI 17844 REDWIN       | 46.24          | 55.50            | 33.00              |
| CI 17860 NEELEY       | 46.16          | 55.20            | 34.00              |
| RDW(sel) AC READYMADE | 43.87          | 59.00            | 34.00              |
| PI517194 TIBER        | 43.06          | 56.40            | 32.00              |

\*\*\*\*\* STATISTICAL TABLE \*\*\*\*\*

|                              | YIELD<br>BU/AC |
|------------------------------|----------------|
| EXPERIMENTAL MEANS           | 50.50          |
| F TEST FOR REPS.             | 2.27           |
| F TEST FOR VAR.              | .61            |
| C.V. 1: (S/MEAN)*100         | 18.25          |
| C.V. 2: (S OF MEAN/MEAN)*100 | 10.54          |
| LSD (0.05)                   | 15.15          |

DATE PLANTED: 9/29/93  
 DATE HARVESTED: 7/22/94

FB389294.WWD  
 FORSYTH.STT

TABLE 2. 1994 SARC OFF STATION DRYLAND WINTER SPELT, TRIT, WHEAT COMPARISON, FORSYTH, MT. DAHLMAN FARM.

|    | VARIETY              | YIELD<br>LBS/A | TEST WT<br>LB/BU | PLANT HT<br>INCHES |
|----|----------------------|----------------|------------------|--------------------|
| 2  | PRESTO TRITICALE     | 4762.00        | 51.20            | 40.00              |
| 1  | B0010 TRITICALE      | 3962.98        | 46.20            | 36.00              |
| 10 | PI348528 SPELT       | 3078.78        | 31.70            | 37.00              |
| 9  | GR900 SPELT          | 2990.03        | 29.20            | 40.00              |
| 5  | VITA II SPELT        | 2968.64        | 29.30            | 42.00              |
| 4  | ALTGOLD SPELT        | 2848.96        | 30.20            | 42.00              |
| 7  | CHAMP SPELT          | 2687.39        | 32.00            | 43.00              |
| 8  | PI348337 SPELT       | 2629.19        | 30.00            | 42.00              |
| 6  | WW9301 HARD WHITE W/ | 2269.15        | 57.10            | 23.00              |
| 3  | SINDELAR MIX SPELT   | 1938.21        | 29.80            | 43.00              |

\*\*\*\*\* STATISTICAL TABLE \*\*\*\*\*

|                              | YIELD<br>LBS/A |
|------------------------------|----------------|
| EXPERIMENTAL MEANS           | 3013.53        |
| F TEST FOR REPS.             | 1.99           |
| F TEST FOR VAR.              | 6.99           |
| C.V. 1: (S/MEAN)*100         | 17.69          |
| C.V. 2: (S OF MEAN/MEAN)*100 | 10.21          |
| LSD (0.05)                   | 914.32         |
| DATE PLANTED: 9/29/93        | 94FORSND.WGD   |
| DATE HARVESTED: 7/22/94      | FORM.WGD       |