**1998 Collaborative On-Farm Testing Results**

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**Table 1. 1998 collaborative on-farm test results.**

**Test County and Variety**

**Description Halt Prowers TAM 107 Yumar**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| In the fall of 1997, eastern Colorado wheat |  | Baca SE | bu/ac28.7 | bu/ac32.9 | bu/ac32.9 | bu/ac---- |
| producers planted twenty-three collaborative on-farm |  | Baca SC | 23.4 | 20.2 | 19.5 | ---- |
| tests in Baca, Prowers, Kiowa, Cheyenne, Kit Carson, |  | Baca WC | 26.6 | 28.9 | 29.7 | 25.6 |
| Adams, Arapahoe, Washington, and Weld counties. |  | Baca EC | 51.4 | 48.7 | 57.7 | 53.5 |
| The objective was to compare the performance of the |  | Baca NC | 64.8 | 66.2 | 64.5 | ---- |
| newly-released, Russian Wheat Aphid-resistant |  | Prowers NE1 | 41.0 | 46.7 | 49.2 | 43.8 |
| varieties; Halt, Prowers, and Yumar, with the |  | Prowers NC | 37.8 | 42.0 | 42.6 | ---- |
| performance of Colorado's most popular, but |  | Prowers NE2 | 55.9 | 49.7 | 51.8 | ---- |
| susceptible variety, TAM 107. The varieties were |  | Kiowa NE | 54.3 | 47.1 | 55.2 | 53.7 |
| planted by the collaborating growers in long, |  | Cheyenne NC | 50.8 | 47.3 | 59.6 | 44.7 |
| side-by-side, strips. Most producers planted additional |  | Cheyenne NE | 43.3 | 39.0 | 45.1 | 47.7 |
| varieties, e.g., Akron, beside the test strips. |  | Lincoln WC | 28.6 | 17.0 | 27.0 | 27.6 |
| Most of Colorado had good fall seeding |  | Lincoln NC | 36.9 | 46.4 | 40.8 | 41.3 |
| conditions that led to good plant stands. However, parts |  | Kit Carson NC | 67.8 | 48.8 | 69.1 | 64.8 |
| of Adams, Arapahoe, Washington and Lincoln counties |  | Washington SW | 37.1 | 31.9 | 36.8 | 32.8 |
| suffered from dry fall planting conditions and dry spring |  | Adams SE | 16.7 | 14.0 | 13.2 | 11.6 |
| growing conditions as well. The October blizzard |  | Adams CE | 23.2 | 21.9 | 24.3 | 25.1 |
| provided late fall moisture and resulted in the |  | Weld SC | 30.3 | 26.2 | 32.4 | 27.8 |
| disappearance of Russian wheat aphids and mites. |  | Weld NE | 30.8 | 41.0 | 34.1 | 31.8 |

Without the wheat curl mite, there was little or no wheat streak mosaic disease.

The results below reflect the yield potential of

the Russian wheat aphid resistant varieties without any aphid pressure. Note that not all varieties were planted in all locations (see Table 1). Table 2 summarizes average yield performance over the maximum number of test results with common varieties, e.g., 19 tests with Halt, TAM 107, and Prowers. As in previous years without Russian wheat aphid, Halt and TAM 107 yields were very similar. The average Prowers yield was 5 bu/ac lower than TAM 107 but many of the tests were conducted in locations where Prowers (and parent

Lamar) would not be recommended for use. The average performance of Yumar was similar to Halt and TAM 107 without any RWA pressure and is expected to be significantly better than TAM 107 if RWA were present.

New in 1997/98 were four locations where each

variety was planted twice, once with phosphate fertilizer, and once without. See Tables 3-5 for results.

Weld NW 22.4 16.1 ---- 18.3

**Table 2. Average variety performance over locations.**

**Variety**

**TAM 107**

**Group of tests with common varieties**

**Halt**

**Prowers**

**Yumar**

bu/ac bu/ac bu/ac bu/ac

19 tests:

39.4 37.7 41.3 ---- Halt, Prowers, TAM 107

14 tests:

38.5 36.1 41.0 38.0

Halt, Prowers, TAM 107, Yumar

**Phosphorus On-Farm Tests**

On four of the collaborative on-farm test sites (COFT), we compared phosphorus fertilizer application (based on CSU soil test recommendations) with no phosphorus fertilizer for each of the four test varieties. Three of the sites tested Low in phosphorus, and one tested Medium (Table 3). The Low testing sites have a high probability of getting a yield response to P fertilizer, and the Medium site has a moderate probability of yield increase.

**Table 3. Soil test P levels and P fertilizer recommendations.**

would be just enough to pay for the fertilizer without paying for the spreading costs (fuel, labor, etc.).

**Test Location**

**Sodium Bicarb Soil Test P (ppm)**

**Application Rate**

**(lb P2O5/A)**

However, there are additional benefits due to P

fertilizer such as the additional N which reduces N

Baca 4 (Low) 40

Lincoln 8 (Medium) 20

Morgan 4 (Low) 40

Prowers 4 (Low) 40

We used 18-46-0 (DAP) to supply P except at the Baca County site where 10-34-0 was used. In all cases, a small amount of N was applied with the P fertilizer, in addition to any farmer applied N. Yields were significantly increased for all four varieties with an

fertilizer costs and the improved weed competition and

subsequent reduction in herbicide costs. These

benefits were not factored into these calculations. Each farmer should weigh the costs and benefits of P fertilizer for their own conditions (soil fertility, weed population, and price).

**Table 5. Economics of P fertilizer costs and wheat return.**

**Wheat Price Which**

average yield increase of four bushels per acre (Table 4).

**Variety Fertilizer Cost**

**Would**

**Pay for Fertilizer**

**Table 4. Impact of P fertilizer on wheat yields.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variety** | ***With* P Fertilizer** | ***Without* P Fertilizer** | **Increase** |
| Halt | bu/ac34 | bu/ac30 | bu/ac4 |
| Prowers | 38 | 34 | 4 |
| TAM 107 | 38 | 34 | 4 |
| Yuma | 37 | 31 | 6 |

**Average 36 32 4**

The fertilizer cost varied with the application rate and product used ($280/ton for 10-34-0 and $310/ton for

18-46-0). With the wheat price as low as it is this year,

the yield increases due to P fertilizer were generally not enough to pay for the additional fertilizer (Table 5). On average across these test sites, a wheat price of $3.22/bu

($/A) $/bu

Baca $16.47 $4.22

Lincoln $6.74 $1.73

Morgan $13.48 $3.46

Prowers $13.48 $3.46

 **Average** $12.54 $3.22

**The Cooperative Extension Agents who make on-farm testing work:**

Tim Macklin - Baca County; Dick Scott - Prowers County; George Ellicott - Kiowa County; Ron Meyer - Kit Carson County; Kurt Jones - Lincoln County; Bruce Bosley - Morgan County; Ron Jepson - Adams County; Jerry Alldredge - Weld County

**Eastern Colorado Extension Wheat Educators**

|  |  |  |  |
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