

## 2002/2003 Collaborative On-Farm Tests (COFT) *Jerry Johnson*

### Introduction

This year, over half (57%) of Colorado's wheat acreage was planted to winter wheat varieties that have been tested in the COFT program which is in its' sixth year of testing. With on-farm testing, wheat producers get to evaluate new varieties on their own farms before seed of the new varieties is available on the market to all farmers. On-farm testing directly involves agents and producers in the variety development process, thereby speeding adoption of superior, new varieties. COFT growers sometimes see some variety characteristic that was not recognized before COFT testing. Agents get experience with new varieties before the varieties are commonly available and share this experience with all their client growers. The whole wheat community benefits from reliable and unbiased COFT results.

Colorado State University Cooperative Extension agents have a large responsibility for the success of this program -recruiting volunteer growers, delivering seed, planning test layout and operations, helping with planting, keeping records, coordinating visits, communicating with growers and campus coordinators, coordination of weighing plot and measuring yields and collecting grain samples for quality analyses. COFT would not be possible without the collaboration of so many dedicated and conscientious wheat producers throughout eastern Colorado. The success of the COFT program in 2003 was also due to the long hours of hard work by our Cooperative Extension agents listed in the table below.

In the fall of 2002, thirty-one eastern Colorado wheat producers planted collaborative on- farm tests (COFT) in Baca, Prowers, Lincoln, Kit Carson, Washington, Phillips, Sedgwick, Logan, Morgan, Adams, Arapahoe, and Weld counties. Working alongside local Extension agents, each producer/collaborator received 100 pounds of seed of each variety and planted the six varieties in side-by- side strips. The objective was to compare performance and adaptability of newly-released varieties.

Comparisons of interest were:

- c Compare Russian wheat aphid resistant, **Ankor**, with non-resistant parent, **Akron**.
- c Compare high yielding KSU hard white wheat, **Trego**, with CSU sister line selection, **Avalanche** .
- c Ascertain relative performance and wide spread adaptability of high yielding *CLEARFIELD\** wheat variety, **Above** .
- c Ascertain relative performance and wide spread adaptability of high yielding Cargill-Goertzen hard red winter wheat variety, **Enhancer**.

An important additional objective of the 2003 COFT tests is being carried out by Federico Pardina, a CSU graduate student supported by the Colorado Wheat Research Foundation, who is mapping eastern Colorado for COFT wheat variety yield and quality characteristics. Two pound grain samples of each variety were collected at all COFT tests and will be used for mapping Colorado for multiple wheat quality characteristics.

### Results

Each test suffered from one or more of the causes for reduced wheat yields in 2003: poor/uneven stand establishment, Russian wheat aphid infestations, fall or spring drought, stripe rust infestation, and hail. Spring drought and hail were the most important factors affecting yields in 2003. Conclusions should not be drawn from a single on- farm test. The 2003 COFT results are divided into three geographic regions- primarily for ease of understanding the results. There were statistically significant differences in yield among varieties in all three regions and in the overall average yields, although the yield differences were not great.

- c Ankor, the RWA-resistant derivative from HRW Akron, performed better than Akron in all

regions and in the overall yield comparisons.

- c Avalanche performed better, by comparison to Trego, in COFT tests than in the small-plot trials. The 2003 results indicate that Avalanche performed as well or better than Trego in southeastern Colorado and along the Front Range while Trego performed better than Avalanche in Northeastern Colorado.
- c Above (HRW), the CLEARFIELD\* wheat variety, performed well in all the regions and was one of the best overall performers. Above can be planted for yield performance alone but certified seed must be purchased annually and can not be kept for seed in another year.
- c Enhancer (HRW), a 1998 release from Cargill-Goertzen, was a top performer in northeastern Colorado and along the Front Range and was one of the top two performing varieties in the overall averages.

Table 20. Eastern Colorado Cooperative Extension Wheat Educators and On-Farm Test Coordinators.

Name	Title	Office Location
Bruce Bosley	Platte River agronomist	Sterling Lamar
Tim Macklin	SE Area agronomist	Burlington
Ron Meyer	Golden Plains agronomist	Cheyenne Wells
Tim Burton	Cheyenne County agent	
Thaddeus Gourd	Adams County agent	Brighton
Jerry Alldredge	Weld County agent	Greeley
Gary Lancaster	Sedgwick County agent	Julesburg
Leonard Pruett	SE Area leader	Lamar
Dwight Rus	Lincoln County agent	Hugo

Table 21. Colorado Collaborative On-Farm Test (COFT) results in 2003.

Test Location	Variety (Yields in bu/ac @ 13% moisture)						
County	Akron	Ankor	Avalanche	Trego	Above	Enhancer	Avg
Adams-K1	17.2	18.2	19.8	19.6	20.2	20.7	19.3
Adams-K2	12.6	11.9	14.9	12.1	14.9	15.2	13.6
Adams-S	52.7	51.6	46.1	47.8	52.0	52.3	50.4
Weld-C	35.2	43.6	33.1	31.7	38.4	35.9	36.3
Weld-W	24.5	30.1	26.3	25.4	27.0	29.9	27.2
Weld-Wh	33.1	34.7	35.0	30.5	34.8	30.1	33.0
Front Range Avg	29.2	31.7	29.2	27.9	31.2	30.7	30.0
* LSD <sub>(0.30)</sub>	b	a	b	b	a	a	
County	Akron	Ankor	Avalanche	Trego	Above	Enhancer	Avg
Kit Carson-D	34.5	37.6	37.0	39.1	39.4	45.8	38.9
Lincoln-H	18.9	20.2	20.5	18.2	14.0	22.4	19.0
Lincoln-M	38.9	38.5	38.4	37.9	42.1	43.4	39.9
Lincoln-O	60.0	62.6	60.8	66.5	59.9	54.1	60.7
Lincoln-S	47.6	48.0	46.4	51.6	53.9	49.3	49.5
Logan-A	44.5	43.7	46.2	48.6	53.9	49.2	47.7
Logan-B	28.6	29.8	29.5	28.3	28.7	29.9	29.1
Logan-G	33.2	34.8	33.9	34.9	36.9	36.4	35.0
Logan-N	59.1	53.7	54.9	58.8	59.4	60.2	57.7
Morgan-M	34.3	37.7	30.6	35.3	35.2	38.0	35.2
Sedgwick-D	60.1	61.0	63.1	59.4	62.5	60.7	61.1
Sedgwick-P	37.7	38.8	38.0	35.5	40.9	40.3	38.5
Washington-W	37.5	46.7	41.8	44.6	35.4	51.3	42.9
Northeast Avg	41.1	42.5	41.6	43.0	43.2	44.7	42.7
LSD <sub>(0.30)</sub>	d	bc	cd	b	b	a	
County	Akron	Ankor	Avalanche	Trego	Above	Enhancer	Avg
Baca-B	40.8	41.7	43.0	42.6	42.1	42.1	42.1
Baca-H1	23.8	28.8	26.3	30.0	30.4	36.9	29.4
Baca-H2	26.3	27.6	26.3	26.7	28.5	29.4	27.5
Baca-L	25.3	27.3	28.3	30.3	31.4	19.2	27.0
Baca-S	17.2	19.8	20.2	14.1	17.5	15.4	17.4
Baca-W1	46.6	44.5	51.0	40.3	43.0	51.1	46.1
Baca-W2	23.9	29.4	31.2	30.1	29.1	27.1	28.5
Cheyenne-S	20.9	20.9	16.3	19.7	17.2	18.0	18.8
Prowers-H1	46.4	44.5	51.3	42.1	37.7	37.8	43.3
Prowers-H2	18.5	17.6	23.1	17.8	28.9	22.1	21.3
Prowers-S	38.0	33.9	36.1	32.8	38.7	27.5	34.5
Southeast Avg	29.8	30.5	32.1	29.7	31.3	29.7	30.5
LSD <sub>(0.30)</sub>	bc	abc	a	c	ab	c	
County	Akron	Ankor	Avalanche	Trego	Above	Enhancer	Avg
Overall Average	34.6	36.0	35.7	35.1	36.5	36.4	35.7
LSD <sub>(0.30)</sub>	c	a	ab	bc	a	a	

\*Varieties with different letters indicate statistically different mean yields using a Least Significant Difference test with alpha = 0.30.