

PROJECT TITLE: Crop Tolerance of Three Spring Wheat and Spring Barley Varieties to Express and Express plus 2,4-D.

YEAR/PROJECT: 1990/754

INVESTIGATORS: Leader - Vern R. Stewart, Todd Keener - Research Specialist

OBJECTIVE: To evaluate three spring wheat and three spring barley varieties for crop tolerance to use rates of Express and Express plus 2,4-D.

RESULTS: Three spring barley varieties (Gallatin, Russel, Bearpaw) and three spring wheat varieties (WB 926, Newana, and Penawawa) were planted in four row plots, four feet by 10 feet using a research plot seeder. Each variety was planted at 60 lbs/acre in a block of six varieties, which was then treated with one of six herbicide treatments. Each of these treatment blocks was replicated four times in a complete randomized block, split plot design. All treatments were applied at the five leaf stage of the grain using a research plot sprayer. Where weeds were not controlled with herbicides undesirable plants were mechanically removed creating a weed free environment. A Hege plot combine was used to harvested the experiment.

In both spring wheat and spring barley there were no significant differences measured in yield, test weight, % plump (barley only), height, and heading date among treatments means. As expected there were significant differences measured between varieties in test weight, % plump, height and heading date.

SUMMARY: Express and Express plus 2,4-D at normal use rates did not affect yield, test weight, % plump, height, and heading dates of spring barley or spring wheat varieties. There were varietal differences in test weight, % plump, height, and heading date.

FUTURE PLANS: At this time there are no future plans for this project.

Table 1. Agronomic data from the Express Crop Tolerance Study on Spring Barley and Spring Wheat. Northwestern Agricultural Research Center, Kalispell, MT.

Yield (Bushels/Acre)

Treatment/Rate	Gallatin	Russel	Bearpaw	Mean	WB 926	Newana	Penewawa	Mean
Express .25 oz	119.3	120.2	117.5	119.0	86.9	89.2	100.9	92.3
Express .5 oz	131.5	126.2	116.1	124.6	97.8	95.9	95.2	96.3
Express + .25 oz 2,4-D 4 oz	124.3	130.9	115.3	123.5	106.7	98.5	98.9	101.3
Express + .25 oz 2,4-D 8 oz	129.1	124.6	119.0	124.2	97.9	94.1	111.4	101.1
Bronate .375 #	127.8	118.5	119.7	122.0	100.4	89.3	100.8	96.8
Check ---	125.5	123.9	124.4	124.6	102.7	92.5	101.3	98.8
Mean	126.3	124.0	118.7	Mean	98.7	93.2	101.4	

Differences between variety and treatment means non-significant

Test Weight (lbs/bu)

Treatment/Rate	Gallatin	Russel	Bearpaw	Mean	WB 926	Newana	Penewawa	Mean
Express .25 oz	48.8	46.2	45.5	46.8	56.9	58.4	57.9	57.2
Express .5 oz	48.2	45.1	45.6	46.3	57.8	59.0	56.8	57.9
Express + .25 oz 2,4-D 4 oz	48.8	45.6	45.5	46.7	58.1	58.7	57.1	58.0
Express + .25 oz 2,4-D 8 oz	49.3	45.9	46.9	47.4	57.5	58.7	58.0	58.1
Bronate .375 #	49.6	46.6	46.5	47.7	58.1	58.6	58.0	58.2
Check ---	48.3	46.2	47.8	47.4	57.8	59.1	56.9	57.9
Mean	48.8	45.9	46.3	Mean	57.7	58.7	57.4	

Differences between treatment means are non-significant
 LSD (.05) between spring barley means = .7096 lb/bu (P=.0000)
 LSD (.05) between spring wheat means = .4633 lb/bu (P=.0000)

Percent Plump

Treatment/Rate	Gallatin	Russel	Bearpaw	Mean
Express .25 oz	97.8	99.0	98.0	98.3
Express .5 oz	96.8	98.3	98.3	97.8
Express + .25 oz 2,4-D 4 oz	97.0	98.5	98.5	98.0
Express + .25 oz 2,4-D 8 oz	97.5	98.5	98.5	98.2
Bronate .375 #	98.0	98.8	97.8	98.2
Check ---	97.5	98.3	98.5	98.4

Mean 97.4 98.7 98.3

Differences between treatment means are non-significant
LSD (.05) between variety means = .6082 (P = .0005)

Height (Inches) June 15, 1990

Treatment/Rate	Gallatin	Russel	Bearpaw	Mean	WB 926	Newana	Penewawa	Mean
Express .25 oz	15.4	15.2	15.4	15.3	12.7	10.9	12.1	11.9
Express .5 oz	15.8	13.3	15.3	14.8	13.0	11.4	11.6	12.0
Express + .25 oz 2,4-D 4 oz	13.9	13.4	15.5	14.2	13.0	10.2	11.0	11.4
Express + .25 oz 2,4-D 8 oz	14.2	13.8	15.5	14.5	13.3	10.9	11.5	11.9
Bronate .375 #	16.2	14.7	16.1	15.7	14.7	11.3	13.1	13.0
Check ---	14.7	13.3	15.1	14.3	12.0	9.6	11.5	11.1

Mean 15.0 13.9 15.5 Mean 13.1 10.7 11.8

Differences between treatment means are non-significant
LSD (.05) between spring barley variety means = .5893 (P=.0000)
LSD (.05) between spring wheat variety means = .6146 (P=.0000)

Height (Inches) August 2, 1990

Treatment/Rate	Gallatin	Russel	Bearpaw	Mean	WB 926	Newana	Penewawa	Mean
Express .25 oz	35.6	34.0	34.1	34.6	32.3	32.8	34.3	33.1
Express .5 oz	34.7	32.5	33.3	33.5	32.7	32.7	34.5	33.3
Express + .25 oz 2,4-D 4 oz	34.5	33.4	34.9	34.3	33.0	33.1	33.2	33.1
Express + .25 oz 2,4-D 8 oz	33.9	32.5	33.8	33.4	32.1	32.8	32.2	32.4
Bronate .375 #	35.7	34.7	35.0	35.2	32.1	32.9	35.3	33.4
Check ---	33.2	32.9	34.3	33.4	32.4	32.9	34.5	33.2
Mean	33.6	33.3	34.2	Mean	32.4	32.8	34.0	

Differences between treatment means are non-significant

LSD (.05) between spring barley variety means = .9279 inches (P=.0269)

LSD (.05) between spring wheat variety means = .6143 inches (P=.0000)

Heading Date (Julian)

Treatment/Rate	Gallatin	Russel	Bearpaw	Mean	WB 926	Newana	Penewawa	Mean
Express .25 oz	180.3	180.0	184.0	181.4	179.0	184.3	184.8	182.8
Express .5 oz	180.3	180.0	184.0	181.4	179.0	183.5	184.8	182.4
Express + .25 oz 2,4-D 4 oz	179.8	179.8	184.0	181.2	179.0	184.8	184.5	182.8
Express + .25 oz 2,4-D 8 oz	180.3	180.0	183.0	181.1	179.3	185.0	184.5	182.9
Bronate .375 #	180.5	180.0	185.0	181.8	179.0	184.3	184.5	182.6
Check ---	180.3	180.0	181.8	180.7	179.0	184.8	184.8	182.8
Mean	180.2	180.0	183.6	Mean	179.0	184.4	184.7	

Differences between treatment means are non-significant

LSD (.05) between spring barley variety means = .6772 (P=.0000)

LSD (.05) between spring wheat variety means = .3903 (P=.0000)