BARLEY (*Hordeum vulgare* 'Conrad')
Fusarium crown rot; *Fusarium* species

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Fungicide and insecticide treatments for control of dryland foot rot and barley mealy bug in 2007.

The trial was established in a commercial dryland barley field near Soda Springs, Caribou County, ID, at an elevation of 6,000 ft. Natural inoculum of dryland foot rot organisms and barley mealy bug have been a perennial problem, with the barley mealy bug first identified in the area in 2003. The field was chosen for the high populations of barley mealy bug observed in the previous year. The field had been continuously cropped to malt barley. The soil type is a 485C Lantonia-Crow Creek silt loam, 4-12% slopes with 3.2% organic matter. Experimental plots (5 x 14 ft planted, 5 x 10 ft harvested) of the 2-row malt barley 'Conrad' were arranged in a randomized complete block design with 4 replicates. Fungicide treatments were applied preplant on the seed. Insecticide treatments were applied preplant on the seed or foliar applied using an R&D CO_2 handheld boom sprayer at 30 psi emitting 20 gpa through three Teejet 8002VS nozzles spaced 19 inches apart. Seed was planted at 600,000/A on 8 May. Row spacing was set at 7-in. with seven rows per plot, planted using a double disk opener with a Hege 500 series drill. Weeds were controlled by 1.5 pt/A Maestro MA and 7 oz/A Achieve applied 15 Jun. Foliar application of fulvic acid occurred 1st June, when plants were in the 4-5 leaf stage. Two of the insecticide treatments were foliar applications applied 3rd Jul at Feekes growth stage 9. Five plants per plot were collected 11 Jul to estimate degree of foot rot and determine barley mealy bug populations. Root and crown rot was rated for the 5 plants/plot based on the crown and lower stem tissue, on a 0 to 5 scale, where 0 = plant clean and white with no obvious infection, 1 = 1-25% plant infected, 2 = 26-50%, 3 = 51-75%, and 4 = >75% affected, roots and stems severely affected (soft), still green tissue on plant, may have dead tillers, and 5 = dead plant with severe discoloration of the crown and stem base. The number of barley mealy bug egg masses, adults, and nymphs were counted along with the number of tillers per plant. Plots were harvested 28 Aug with a small plot combine. Yield, test weight, grain protein, and percent plumps were determined. Data were analyzed using general linear model (Proc GLM) in SAS. Fisher's protected LSD was used for mean comparisons.

There was significant drought damage to the plots, and barley mealy bug populations were reduced due to the open, cold winter. There were no significant differences at $P \leq 0.05$ in any measurement except test weight. Test weight was highest with insecticide treatments that were foliar and seed applied, and the lowest test weights were on the biological control seed treatments.

Product	Rate	Yield bu/a	Test Weight lb/bu	Tillers per plant	Disease Rating
Untreated Control ……..	-	42.7	49.1	6.0	3.1
Untreated Control PLUS phosphorus in-furrow ……	30 lb/A of 16-20-0	50.0	49.0	7.0	2.3
Gaucho 480 Flowable ……...	1 oz/100 lb seed	42.7	48.9	6.4	3.0
Gaucho 480 Flowable ……...	0.50 oz/100 lb seed	43.7	49.1	4.7	2.0
Cruiser 5 FS ...……...	1.3 oz/100 lb seed	47.8	49.5	7.2	3.1
Cruiser 5 FS ……...	0.515 oz/100 lb seed	44.1	49.2	6.5	1.9
Dividend Extreme …….	4 fl oz/100 lb seed	40.0	48.6	6.2	1.4
Raxil MD Extra …….	5 fl oz/100 lb seed	41.4	49.2	7.3	2.4
Biological Control – Kodiak (bacteria) …….	0.2 fl oz/100 lb seed	45.0	48.3	5.7	2.0
Biological Control – TrigoCor 1448 …….	12.5 ml culture / 250 g seed	44.2	48.8	7.4	2.6
Fulvic acid …….	64 fl oz/A	45.3	49.4	5.8	2.3
Gaucho 480 Flowable Raxil MD Extra ……..	3 oz 5 oz/100 lb seed	48.4	49.5	6.4	2.6
Phaser 3 EC ……...	32 oz/A	49.8	49.5	6.1	2.2
Warrior with Zeon Technology ...…….	3.84 oz/A	44.9	50.9	6.9	2.6
	CV	13.5	1.7	20.7	38.3
	Pr > F	NS	0.0433	NS	NS
	LSD (a=0.05)	8.7	1.2*	1.9	1.3
	LSD (a=0.1)	7.3	1.0	1.6	1.1

* LSD = Fisher's protected least significant difference value. NS = not significantly different.