SNAP BEAN (*Phaseolus vulgaris* 'Huntington')
Damping off; *Pythium* spp., *Fusarium* spp.

S. A. Jordan and A. J. Gevens
Department of Plant Pathology,
University of Wisconsin, Madison, WI 53706

Evaluation of fungicides to control root rot and damping off in snap beans, Hancock, WI, 2021.

A trial to evaluate the effectiveness of fungicides to control root rot and damping off of snap bean was established on 1 Jun at the University of Wisconsin Hancock Agricultural Research Station located in central Wisconsin. The commercially available cultivar, 'Huntington' was used. Plots were 20 ft long with four rows spaced 18 in. apart with a seeding rate of 8 seeds per ft. The trial consisted of four replications, and plots were arranged in a randomized complete block design. The trial was established in a root rot nursery with a history of root rotting disease, and susceptible legumes were cropped in this field in the previous year to increase multiple genera of soilborne pathogens in the field. Naturally occurring inocula were the only source of pathogens for disease development. Fertility, insects, and weeds were managed during the growing season according to standard grower practices for the region. Seed treatments were applied at a rate of 25 ml per lb of seed and allowed to dry prior to planting. In-furrow fungicide applications for control of root rot and damping off were applied as a drench over the top of the planted row in a volume of 1 L per plot. Emergence data and the number of seedlings dying from damping-off were recorded on 23 Jun by counting the number of emerged, dying, and dead plants in the two center rows. On 17 Aug, ten feet from the two center rows were hand harvested and weighed. All data were analyzed using analysis of variance (ANOVA) at α=0.05 and Fisher's least significant difference (LSD) at α=0.05 (SAS Version 9.2). The trial received 8.05 in. of irrigation (20 applications) to supplement 15.79 in. of natural precipitation.

Weather conditions during the initial few weeks of this trial were atypically hot and dry for the region. There were no significant differences between treatments for emergence, seedlings lost to damping-off, and yield. Plants in all plots were stunted as a result of extreme disease pressure and yields were low. Observation of the root system showed uniformly rotted tap roots in all treatments, with only few healthy, shallow lateral roots allowing for plant survival.

Treatment and rate[z]	Application Timing[y]	Emergence (%)	Post-emergent Damping-off Seedlings (per plot)	Yield (ton/A)
Non-treated Control	NA	88.8	23.0	0.76
Ridomil Gold 0.42 fl oz	IFAP	82.5	10.8	1.13
Ridomil Gold 0.42 fl oz + Quadris 2.018 SC 0.8 fl oz	IFAP	94.7	8.3	1.56
Quadris 2.018 SC 0.8 fl oz	IFAP	82.7	8.8	1.56
Velum Prime 0.45 fl oz	IFAP	86.0	18.3	1.13
Serenade ASO 4.4 fl oz	IFAP	90.0	24.8	0.95
Double Nickel 2.2 fl oz	IFAP	87.5	25.8	0.87
Propulse .36 fl oz	IFAP	81.3	22.5	0.77
Proline 0.192 fl oz	IFAP	84.7	18.8	0.80
Regalia 4.4 fl oz	IFAP	85.8	25.8	0.62
Howler 5.5 oz	IFAP	81.6	21.5	0.69
Vibrance 4.3 SC 0.16 fl oz/ 100 lb seed	Seed Treatment			
Ridomil Gold 0.42 fl oz	IFAP	87.0	21.5	1.02
Vibrance 4.3 SC 0.16 fl oz/ 100 lb seed	Seed Treatment	78.8	20.5	1.13
EverGol Energy 1 fl oz/100 lb seed	Seed Treatment	72.7	15.5	1.20
Vitoflow 2.6 ml/kg seed	Seed Treatment	75.0	16.3	0.73
Ridomil Gold 2.5% v/v	Seed Treatment	90.2	22.8	0.98
Velum Prime 1.5 fl oz/100 lb seed	Seed Treatment	77.5	22.3	0.73
Saltro 4.17 FC 1.5 fl oz/100 lb seed	Seed Treatment	92.7	24.3	1.02

[Z]Treatment rates applied in-furrow are given per 1,000 row ft. Seed treatments are given per seed weight or v/v in water.
[Y]Seed treatments and in-furrow treatments were applied at the time of planting.