

Minnesota - Soybeans



TALC REPLACEMENT STUDY

PURPOSE

To evaluate various talc replacement products and their effect on yield and profitability.



Talc and graphite are designed to lubricate planter equipment. The replacement products tested are intended to do the same thing but also deliver an additional benefit, whether a biological or nutritional component.

2021 RESULTS

TREATMENTS	PERCENT MOISTURE	BU./A.	BU./A. DIFFERENCE	RETURN ON INVESTMENT
Control: 2 oz./unit of seed 80/20 Talc/Graphite Blend	10.7	51.1	-	-
2 oz./unit of seed SEED+™ GRAPHITE	10.9	54.2	+3.1	+\$34.07
1 oz./unit of seed DUST®	10.7	53.8	+2.7	+\$32.20
4 oz./unit of seed GroPak™	10.7	53.7	+2.6	+\$29.23
3 oz./unit of seed Moly Dry	10.8	53.3	+2.2	+\$23.58

Soybeans \$11.95/Bu. DUST® \$7.50/lb. GroPak™ \$9.00/lb. SEED+™ GRAPHITE \$27.00/lb. Moly Dry \$16.64/lb. 80/20 Talc/Graphite Blend \$3.25/lb. These results are based on the disclosed study parameters and participating sites.



STUDY INFORMATION | Planted 4/29/2021 | Harvested 9/27/2021 | Population 130,000 Seeds/A. | Row Width 30 in. | Previous Crop Corn | Tillage Fall: Disk-Rip, Spring: Field Cultivation | Herbicides Pre: 5 oz. Zidua® PRO Post: 22 oz. Roundup PowerMAX®, 42 oz. Liberty® | Insecticides Escalate® | Nemasect® | SDS+ | ILeVO® + TWO.O® | Brand 1910E3 | Soil Type Harps (Clay Loam) | Soil Test Values pH 7.9, O.M. % 5.6, CEC 34.2 | Percent Base Saturation Ca 87.7, Mg 11.1, K 1.3, H -- | Parts Per Million P 18, K 168, S 14, Zn 2.8, Mn 66, B 3.4

Minnesota - Corn



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2021 RESULTS

TREATMENTS	PERCENT MOISTURE	BU./A.	BU./A. DIFFERENCE	RETURN ON INVESTMENT
Control: 2 oz./unit of seed 80/20 Talc/Graphite Blend	18.6	184.7	--	--
1 oz./unit of seed DUST®	18.8	188.2	+3.5	+\$16.70
4 oz./unit of seed SEED+™ GRAPHITE	18.7	186.3	+1.6	+\$4.95
3 oz./unit of seed PMZ Dry	18.9	185.0	+0.3	+\$0.35
4.5 oz./unit of seed GroPak™	19.0	184.1	-0.6	-\$3.78

Corn \$4.78/Bu. DUST® \$7.50/lb. GroPak™ \$9.00/lb. PMZ Dry \$15.69/lb. SEED+™ GRAPHITE \$27.00/lb. 80/20 Talc/Graphite Blend \$3.25/lb. These results are based on the disclosed study parameters and participating sites.



STUDY INFORMATION | Planted 4/30/2021 | Harvested 10/6/2021 | Population 34,000 Seeds/A. | Row Width 30 in. | Previous Crop Soybeans | Tillage Fall: Disk-Rip, Spring: Field Cultivation | Herbicides Post: 2.25 qt. Acuron®, 22 oz. Roundup PowerMAX® | Insecticides Escalate® | Starter 20 gal. 28-0-0 2x2x2 | Total Nitrogen 190 units as UAN | Brand 5202AM™ | Soil Type Harps (Clay Loam) | Soil Test Values pH 7.7, O.M. % 6.5, CEC 31.7 | Percent Base Saturation Ca 87.6, Mg 10.9, K 1.5, H -- | Parts Per Million P 18, K 185, S 11, Zn 2.8, Mn 73, B 2.9

Multi-location - Soybeans



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PARTICIPATING SITES

IN	KY	C.IL	S.IL	OH	IA
MN	WI	MI			



GroPak™ is a blend of four nutrients and may replace talc and graphite. This is the first year of this study.

2021 RESULTS

TREATMENTS	PERCENT MOISTURE	BU./A.	BU./A. DIFFERENCE	RETURN ON INVESTMENT
Control: 2 oz./unit of seed 80/20 Talc/Graphite Blend	12.0	71.1	--	--
4 oz./unit of seed GroPak™	11.6	72.2	+1.1	+\$11.30
3 oz./unit of seed Moly Dry	11.6	71.8	+0.7	+\$5.65
1 oz./unit of seed DUST®	11.8	71.2	+0.1	+\$1.13
2 oz./unit of seed SEED+™ GRAPHITE	11.6	69.9	-1.2	-\$17.31

Soybeans \$11.95/Bu. DUST® \$7.50/lb. GroPak™ \$9.00/lb. SEED+™ GRAPHITE \$27.00/lb. Moly Dry \$16.64/lb. 80/20 Talc/Graphite Blend \$3.25/lb. These results are based on the disclosed study parameters and participating sites.

Multi-location - Corn



TALC REPLACEMENT STUDY

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To evaluate various talc replacement products and their effect on yield and profitability.

PARTICIPATING SITES

IN	KY	C.IL	S.IL	OH	IA
MN	WI	MI			



MULTI-LOCATION



This is the first year of this study, and several of the products tested demonstrated positive results. We did not have any issues reported at planting related to clumping or sticking of any of the products in humid conditions. We will continue to test these products in future years to learn more.

2021 RESULTS

TREATMENTS	PERCENT MOISTURE	BU./A.	BU./A. DIFFERENCE	RETURN ON INVESTMENT
Control: 2 oz./unit of seed 80/20 Talc/Graphite Blend	20.9	223.3	--	--
1 oz./unit of seed DUST®	20.9	224.8	+1.5	+\$7.14
4.5 oz./unit of seed GroPak™	20.9	224.9	+1.6	+\$6.74
4 oz./unit of seed SEED+™ GRAPHITE	20.7	225.1	+1.8	+\$5.90
3 oz./unit of seed PMZ Dry	20.9	222.8	-0.5	-\$3.47

Corn \$4.78/Bu. DUST® \$7.50/lb. GroPak™ \$9.00/lb. PMZ Dry \$15.69/lb. SEED+™ GRAPHITE \$27.00/lb. 80/20 Talc/Graphite Blend \$3.25/lb. These results are based on the disclosed study parameters and participating sites.