ADDITION OF *Methylobacterium symbioticum* (BLUE-N™) TO TRANSFORM®WG INSECTICIDE HAS LITTLE EFFECT ON APHID CONTROL BUT DOES RESULT IN SLIGHTLY HIGHER ALFALFA QUALITY AND YIELDS

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INTRODUCTION

Several new bacteria species that fix nitrogen in plant foliage have recently become commercially available. One such bacteria is *Methylobacterium symbioticum*, commercially available in both Utrisha®N and BlueN™

BlueN™

NUTRIENT EFFICIENCY BIOSTIMULANT

Being only recently commercially available, there are more questions than answers from local research about the product and the range of effectiveness.

Two questions were:

1). Does this bacterium alter insecticide efficacy when added to an alfalfa aphid insecticide application?

2). If so, are there any differences in alfalfa yield and quality?

METHODS AND MATERIALS

Transform® WG insecticide was applied with and without 5 oz./acre of BlueN™ via a backpack sprayer equipped with a 4 nozzle boom and applying 20.2 gallons/acre of solution. to established alfalfa infested with cowpea aphids (*Aphis craccivora*) following the immediate previous cutting, with additional infestations of blue alfalfa aphid *(Acyrthosiphon kondoi).*during the regrowth cycle.

Treatment Comparisons:

- Untreated
- Transform WG 1 oz./acre
- Transform WG 1 oz./acre + BlueN™ 5 oz./acre

Application Dates/Ave Plant Ht.(“)

Feb. 14 – 3.6”
Feb. 18 – 6.0”
Feb. 24 – 9.0”

Experimental design was randomized complete block with 3 replications for each application date.

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Aphid sampling consisted of 10 sweeps per plot using a 15” diameter sweep net, transferring to containers, freezing insects and then sorting/counting them. Sample dates were Feb. 18 and 25, and March 3 and 9.

Plot yields were obtained by cutting the alfalfa from within a 25.5 x 26 inch form in each plot with a serrated knife, allowing cut alfalfa to air dry in bags , and then weighing and calculating yields per acre.

Samples were then analyzed for quality via NIR spectroscopy (Stanworth Crop Consultants, Blythe, CA).

Treatment mean comparisons were statistically analyzed using Students’ T test (JMP Pro. 16.0.0).

RESULTS

Addition of BlueN™ had little effect on aphid populations when used with Transform WG treatments on any application date (Fig. 1).

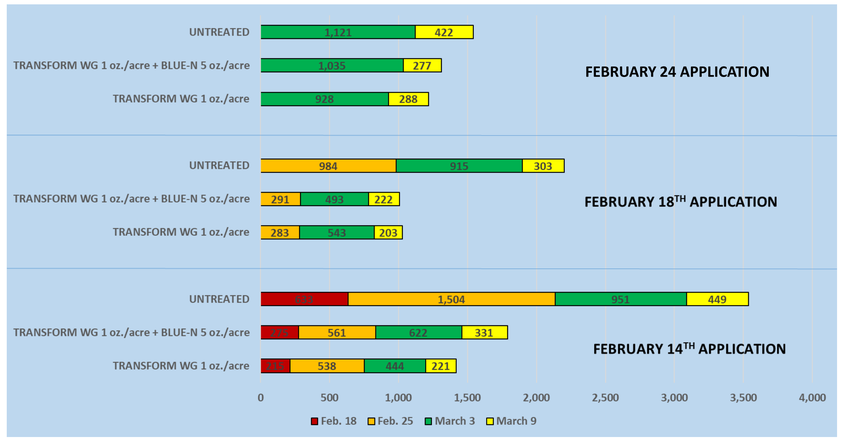

Figure 1. Mean total aphids per 10 sweeps following applications at 3 different dates/plant heights.

Addition of BlueN™ resulted in small increases of alfalfa hay on all three application dates when compared with Transform WG. Significantly more hay was noted from the Feb. 24 application and overall when compared with untreated alfalfa.

Table 1. Mean Established Alfalfa Hay Yields (lbs./acre) Following Treatment Application at Various Points of Regrowth, Blythe, CA, 2022.

Treatment and Rate/Acre	Treatment Date			
	Feb. 14	Feb. 18	Feb. 24	Average
Transform® WG 1 oz.	2,490 a	2,416 a	2,314 ab	2,407 ab
BlueN™ 5 oz. + Transform® WG 1 oz.	2,608 a	2,439 a	2,618 a	2,589 a
Untreated	2,403 a	2,195 a	2,154 b	2,251 b

Means in columns followed by the same letter are not statistically different at the P<0.05 level of probability (Student’s T Test, JMP Pro 16.0.0)

Addition of BlueN™ to Transform® WG also resulted in slightly higher relative feed values on each application date, with an average increase of 5.2 relative feed value points.

Table 2. Mean Alfalfa Hay Relative Feed Values Following Treatment Application at Various Points of Regrowth, Blythe, CA, 2022.

Treatment and Rate/Acre	Treatment Date			
	Feb. 14	Feb. 18	Feb. 24	Average
Transform® WG 1 oz.	188.2 a	181.5 a	191.8 a	187.2 b
BlueN™ 5 oz. + Transform® WG 1 oz.	188.6 a	189.7 a	199.0 a	192.4 ab
Untreated	190.1 a	194.8 a	202.5 a	195.8 a

Means in columns followed by the same letter are not statistically different at the P<0.05 level of probability (Student’s T Test, JMP Pro 16.0.0)