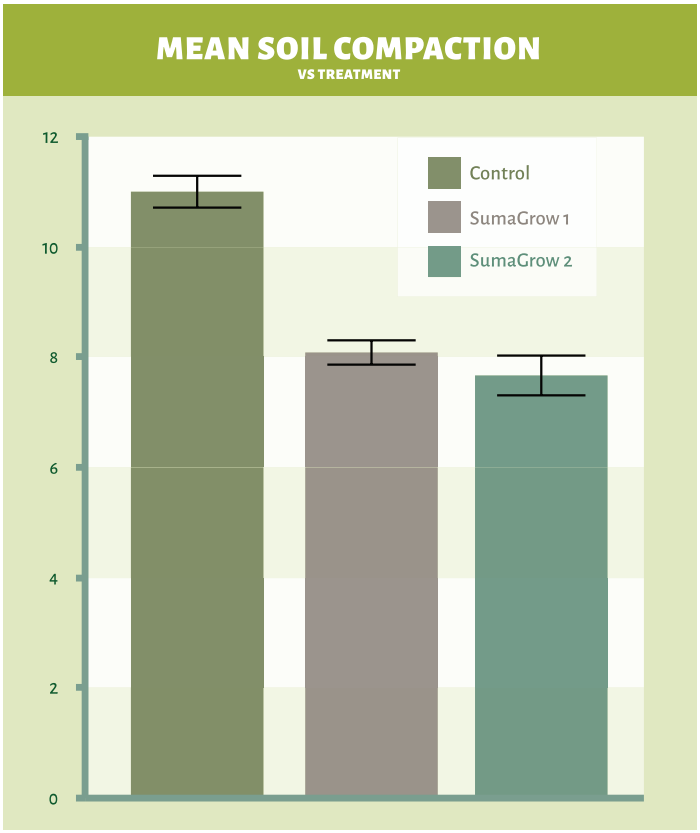
AUDUBON FIELD TRIAL

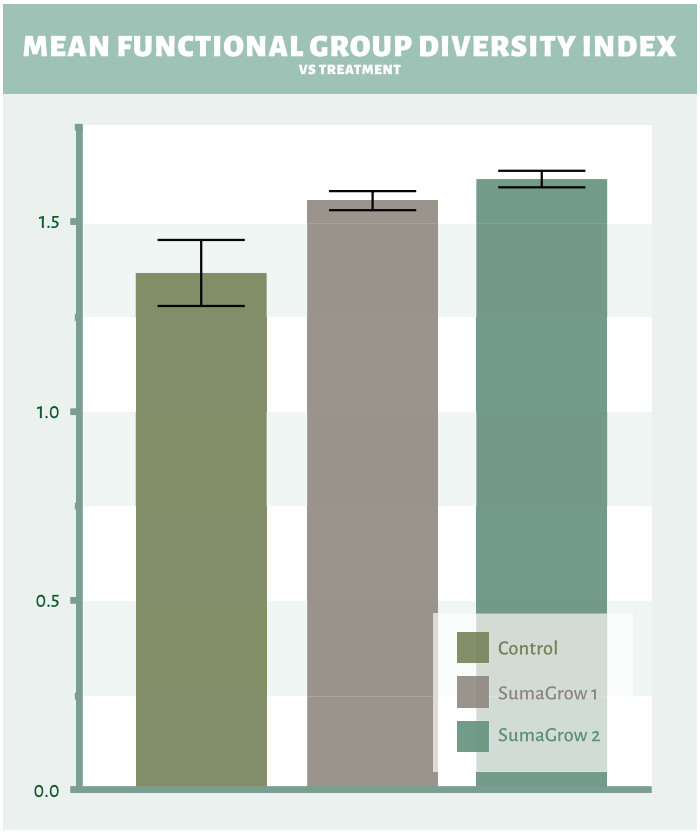
A study managed by the Missouri Department of Conservation (MDC) in collaboration with the Audubon Society was conducted with SumaGrow® on the Ionia Ridge Conservation Area in Missouri. This 233 acre area lies within the Hi Lonesome Focus Area for recovery of the greater prairie chicken and native habitat for other grassland species. The study on this area focused on interests in pursuing the potential for soil microbial products to improve success of native tallgrass seedling establishment and also to evaluate the effect on stand persistence. This area was an active row crop and cattle grazing farm prior to the acquisition by the Missouri Conservation Department in 2008.

The main parameters of this study focused on the differences in the physical and biological properties of the soil between control and SumaGrow® treatment groups within the Conservation Area: When comparing soil treated with a product containing SumaGrow® with untreated plots, the treated soil experienced a 15+ percent increase in soil moisture potential. How does this benefit the grower struggling with drought or frustrated by soggy soil? The benefit for both is that healthy soil holds water.

Rain and moisture are captured by the soil instead of remaining on the surface to volatize off or run-off into streams and waterways, most likely taking valuable top soil and nutrients with it. For the grower who is struggling with muddy, over wet soil, fertile ground dries out quicker as the water penetrates the soil instead of remaining on the surface, slowing down planting or damaging grasses and turf.

Additionally, the Audubon study found a 26 percent reduction in soil compaction in the SumaGrow® treated soil. Reduced soil





compaction means that the soil is softer and more aerated, so plant roots can grow more easily and reach deeper to tap the water and nutrients held within the subsoil.

In addition, this study found that SumaGrow® treated soil contained a higher functional group diversity index in relation to the microbial populations within the treatment areas. This can be taken to mean that the SumaGrow® treated areas had a more balanced microbial population, leading to more productive soil in the end.

The mean functional group diversity indices for the treatment groups were significantly higher for the SumaGrow® treated groups. The 1 gallon per acre rate versus the control had the highest mean functional group diversity (mean = 1.61, p = 0.0099*), the 1/2 gallon per acre rate versus the control had the second highest mean functional group diversity (mean = 1.56, p = 0.034*), and there was no significant interaction between the SumaGrow® treatment groups in relation to mean functional group diversity (mean = 1.37, p = 0.47).

The mean fungal bacterial ratios for the treatment groups were significantly higher for the SumaGrow® treated groups. The 1 gallon per acre rate versus the control had the highest mean fungal bacterial ratio (mean = 0.27, p = 0.0029*), the 1/2 gallon per acre rate versus the control had the second highest mean fungal bacterial ratio (mean = 0.26, p = 0.0054*), and there was no significant interaction between the SumaGrow® treated groups in relation to mean fungal bacterial ratios (mean = 0.15, p = 0.33).

In relation to soil compaction, measured in pounds per square inch, the SumaGrow® treatment at 1 gallon (mean = 7.67 psi) and ½ a gallon (mean = 8.08 psi) per acre were significantly lower than the control (p = < 0.0001) which had the highest pressure readings (mean = 11 psi).

In relation to soil moisture, obtained from a moisture probe, the SumaGrow® treatment at 1 gallon (mean = 61.67, p = 0.056) and ½ a gallon (mean = 62.5, p = 0.035) per acre were significantly higher than the control which had the lowest moisture readings (mean = 54.2).