Efficacy of drySTART™ in Reducing Ammonia Concentrations In Vitro

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Introduction:

Physical characteristics of drySTART™ make it a good candidate to be used in reducing ammonia concentrations in closed environments. An in vitro trial was conducted to test the efficacy of drySTART in reducing ammonia concentrations.
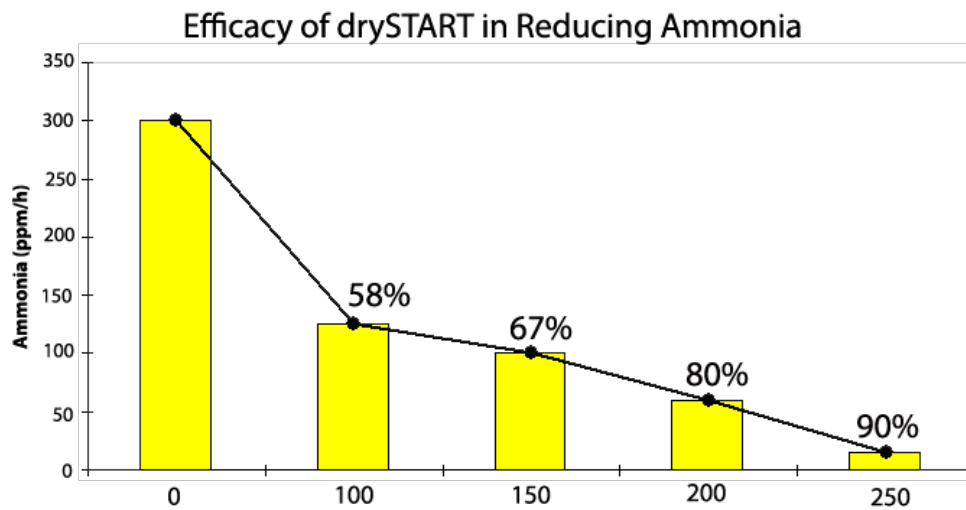
Material and methods:

A preliminary trial was conducted to determine which concentration of ammonia could produce emissions of ammonia at a higher rate than those that can be achieved in extreme field conditions. It was also determined which rate of added drySTART could show measurable reductions. It was found that 10 ml of 4% ammonia in water solution resulted in emissions of 300 parts per million an hour (ppm/h). Four 10 ml aliquots of a 4% ammonia solution were added with 1.0, 1.5, 2.0, and 2.5 grams drySTART in a closed recipient. (1 ml is approximately 0.034 fl. oz and 1g is approximately 0.035 oz). A Gastec Passive Dosi-Tube was fixed on the lid of the recipient to record the emissions of ammonia. After one hour, ammonia emissions were read and recorded.

Results:

There was a lineal response in reduction of ammonia emission as result of the increased addition of drySTART, showing the efficacy of the product (Table 1, Figure 1).

Efficacy of drySTART in reducing ammonia emissions

Product	Grams	NH4 (ppm/h)
drySTART	0.0	300
drySTART	1.0	125
drySTART	1.5	100
drySTART	2.0	60
drySTART	2.5	15

Adding 1 g drySTART reduced ammonia emission by 58%, 1.5 g drySTART reduced ammonia emission by 67%, 2 g drySTART reduced ammonia emission by 80%, and 2.5 g DryStart reduced ammonia emission by 95%. These results clearly show that drySTART could reduce ammonia emissions in a closed atmosphere.

It was demonstrated the efficacy of drySTART in reducing ammonia emissions when it is added to an ammonia aqueous solution.

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