Environmentally friendly certified organic dehydrated alfalfa pellets: Effect of different rates and methods of application on turf grass.

Haq I[†], Will D[†], Solsten B[†], Graham G[†]
[†] Western Alfalfa Milling Co., Ltd., Box 568, Norquay, Saskatchewan, Canada, S0A 2V0
info@wamcoltd.ca, www.wamcoltd.ca, tel:1 866 926 2583, fax: 306-594 2183

Abstract
Chemical fertilizers commonly being applied on turf grass in lawn and gardens are associated with concerns to pets, children and environment health. There is a need to find a safe and sustainable alternative to harmful chemical products. Dehydrated alfalfa pellets are produced through the dehydration of alfalfa and could be a good alternative to chemical fertilizers. However, there is not enough published literature exploring this aspect of dehydrated alfalfa pellets. Impact of different application rates [0, 0.5, 1, 1.5, 2 and 2.5 metric tonnes per acre] and methods [before and after laying sod] of dehydrated alfalfa pellets [5/32 inches diameter] application was studied in an experiment conducted on turf grass [*Kentucky blue grass (60): Fescue (40)*]. The experiment was conducted according to a randomized complete block design having twelve treatments [6 application rates and 2 methods of dehydrated alfalfa pellets application] replicated four times on 48 plots [0.91 x 1.83 m]. A measured quantity of water i.e., 56.75 liters was applied daily to each plot for the first two weeks followed by 37.85 liters per plot at weekly intervals for rest of the experimental period [65 days]. The results of the study indicated that there was a significant increase in grass biomass, grass cover and color index with increasing rates of dehydrated alfalfa pellets application. The dehydrated alfalfa pellets applied on the turf grass before laying the sod showed significantly higher grass biomass, grass cover and color index as compared to the pellets applied after laying the sod. It was concluded that dehydrated alfalfa pellets can be used successfully on turf grass. Being a natural product and free from chemicals, it is safe to apply on turf grass in lawn and gardens without any risk to pets or children. Since it is a slow release product it may help reduce green house gas emissions and be a product of choice for the organic producers.

Introduction

Chemical fertilizers are being used for the development of turf grass in lawn, gardens, parks and golf courses. The application of these fertilizers causes nitrogen leakage from agricultural systems into groundwater, rivers, coastal waters, and the atmosphere (Galloway et al., 2003). The use of chemical fertilizers also contributes to environmental pollution and raises environmental concerns among scientists, environmental groups and agricultural policy makers (Tilman et al., 2002). Moreover, the use of chemical fertilizers on the grass in lawn and gardens has remained a concern for children and pets due to chemicals in these fertilizers. These fertilizers require special care and attention during storage and handling. Therefore, there is a need to find out an alternative which is safe for pets and children and poses no risk to the environment. The use of organic fertilizers, alone or in combination with synthetic fertilizers, may mitigate nitrogen pollution from agricultural systems (Nosengo, 2003). Various studies have indicated that nitrogen leaching losses are higher from soluble nitrogen formulations than with slow release formulations (Engelsjord and Singh, 1997).

Dehydrated alfalfa is produced through the dehydration of alfalfa grown naturally and encapsulating all the plant nutrients in it. Being a natural product it is free from chemicals and is safe for pets and children. Since it is a slow release product the nutrients are not likely to be leached out in the water run off. However, there is not enough research conducted to study the potential of using dehydrated alfalfa pellets instead of chemical fertilizers for the development of turf grass in lawn and gardens. This research study was therefore planned to examine the impact of different rates and methods of dehydrated alfalfa pellets application on turf grass.

Materials and methods

The experiment was conducted according to a randomized complete block design having twelve treatments and four replicates [Plates 1 and 2].

Plate 1. Experimental site and land preparation

Dehydrated alfalfa pellets [5/32 inches diameter, Table 1] were applied at the rates of 0, 0.5, 1, 1.5, 2 and 2.5 metric tonnes per acre on 0.91 x 1.83 meter plots by two methods [before and after laying sod] on the grass [*Kentucky blue grass (60): Fescue (40)*]. The treatments in each block were assigned randomly. Weighed quantities of dehydrated alfalfa pellets adjusted on dry matter basis were broadcasted manually on each experimental plot. The experimental plots were watered individually using pails at the rate of 56.78 liters per plot daily for the first two weeks and thereafter it was reduced to 37.85 liters per plot once per week for rest of the experimental period.