**INTRODUCTION**

Sunn hemp, *Crotalaria juncea* L. (SH) (Fig. 1) is a tropical or sub-tropical fast growing fibrous legume native to the Indo-Pakistan sub-continent with a history that dates back to the beginning of agriculture practices (Rotar and Joy, 1983). When grown in tropical regions, SH is a year-round crop, however, in sub-tropical regions, SH is best grown as an annual summer cover crop (Rotar and Joy, 1983). When SH is used as a cover crop, it can suppress plant-parasitic nematodes such as root-knot nematode (Rotar and Joy, 1983) that can affect banana crops in Hawaii (Henni and Marahatta, 2015), and reniform nematodes that can affect pineapple production (Ffewkes and Marahatta, 2012). SH can also suppress the population of beneficial nematodes in soil such as bacteria and fungi feeding nematodes (Marahatta et al., 2010) that have an integral part in nutrient cycling and are an indicator of overall soil health.

**SHADE HOUSE EXPERIMENT I**

**SHADE HOUSE EXPERIMENT II**

**FIELD EXPERIMENT I**

**FIELD EXPERIMENT II**

**HIGH SCHOOL OUTREACH I**

**HIGH SCHOOL OUTREACH II**

**DISCUSSION**

The results of the Shade House Experiment-I, Field Experiment-II, and the seed germination trend of Shadhouse Experiment-II are consistent with the results of an earlier study where the use of SH reduced various vegetable seed germination (Skinner et al., 2012) confirming the allelopathic effect of SH on seed germination if cash crops are seeded immediately after mixing SH to the soil. Furthermore, the higher population of bacterivorous nematodes in cover crop incorporated treatments could be from the rapid cycling of organic materials as described by Wang and McSorley (2005), where higher populations of bacterivorous nematodes was found in the SH and soil mixed field experiment (Marahatta et al., 2010) and shadhouse experiment (Henni and Marahatta, 2015). No herbivorous nematode in SH is probably due to plant-parasitic nematode killing effects of SH released allelopathic chemical, monocrotaline, as described by previous researchers (Rotar and Joy, 1983; Wang and McSorley, 2005). Additionally, results of the High School Outreach-I and the trend of High School Outreach-II support that two weeks is sufficient to increase beneficial bacterivorous nematode, Rhabditidae's population on SH incorporated soil, as found by Wang et al. (2004) in letterbags, even in soil with little vegetation initially present in soils.

It is recommended that SH can be used as part of agricultural based instruction as a cover crop to enhance nutrient cycling with increased beneficial nematode populations as well as for suppressing plant-parasitic nematodes through SH's allelopathic effects. Furthermore, because of the consistent experimental results of SH on the enhancement of beneficial nematodes in soil within two weeks, SH can be used as an effective model plant for teaching soil ecology, plant biology, and agriculture in high school science classrooms. It is also recommended that instructors could use the allelopathic effect of SH to show that they should wait at least one week, but no longer than two weeks after SH incorporation to the soil for cash crop planting in order to obtain the best results for cash crop seed germination.

**CONCLUSION**

**TABLE 1. Effects of sunn hemp (SH), pigeon pea (PP) and control (CC) on beneficial and plant-parasitic nematode genera and their numbers in the field.**

<table>
<thead>
<tr>
<th>Nematode</th>
<th>SH</th>
<th>PP</th>
<th>CC</th>
<th>SH</th>
<th>PP</th>
<th>CC</th>
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<tbody>
<tr>
<td><strong>Fungivores</strong></td>
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<td><strong>Bacteriovores</strong></td>
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<td><strong>Herbivores</strong></td>
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<td><strong>Total Nematodes</strong></td>
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**REFERENCES**