**Thesis Outline**

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**Waste Stream Utilization:**

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**Amount/source**

**Costs of disposing of waste**

**Other potential uses for waste**

**Biofuels**

**Animal feed,**

**Benefits of using mushrooms**

**Biodiversity**

**Spent Substrate as fertilizer**

**The Mushroom Cultivation Industry:**

**Brief history**

**Growth in industry and consumption**

**Increased interest in cultivating at home**

**Gaps in Research:**

**Limited number of species**

**Species x substrate x environmental relationships may not be optimized**

**Most US cultivation dominated by large firms**

**Solutions:**

**Small-scale cultivation techniques**

**Research neglected species x substrates local products**

**Cost/Benefit Analysis:**

**Waste stream outlet**

**“Can I make more/as much money selling by-products to mushroom cultivators?”**

**Nutrient retention in farming**

**Cultivators**

**Price of mushrooms**

**Calculate startup/equipment costs**

**Cultivation:**

**Nutritional Requirements**

**Mushroom Strains**

* ***Hericium / lion’s mane***
* ***Pleurotus / oyster***
* ***Auricularia* /wood ear**
* ***Gandoerma / reishi***
* ***Stropharia rugosoannulata / Wine cap***
* ***Lentinula / shiitake***
* ***Grifola fondosa / Maitake:***
* ***Agaricus Augustus***

***Agaricus Avrensis***

**Chapter 2: Species x substrate x environment experiments**

**Methods:**

**Results:**