

**SPFG Project Tracking Form**

**Project Number: 2018-05**

<b>Project Title</b>	aerobic digestion of spent hen hydrosylate
<b>Date submitted</b>	November 6, 2018
<b>Submitted by</b>	Marc Legault, Alberta Agriculture and Forestry
<b>Summary</b>	<p>They are proposing the aerobic digestion of spent hen hydrosylate (from thermal hydrolysis) to produce microbiologically-rich field and greenhouse plant nutrient solutions.</p> <p>Thermal hydrolysis is a Canadian technology developed to process risk animal by-products and carcasses, and is designed to destroy all pathogens, diseases, viruses and TSE's, (transmissible spongiform encephalopathy) including bovine spongiform encephalopathy aka mad cow disease.</p> <p>The easily scalable technology is approved by the OIE (World Organization for Animal Health) and is certified by CFIA (Canadian Food Inspection Agency). A commercial biorefining plant in Lethbridge, AB, processes 30 tonnes per day of primarily bovine material, and the technology holder, Biosphere Technologies, has a mobile pilot unit which processes half tonne batches. The process involves grinding the feedstock (the project would utilize spent hens) then processing for 40 minutes at 180° C and 1,200 kPa in a high pressure reactor thereby destroying all pathogenic agents but retaining the valuable nutrients.</p> <p>The end result is a liquefied hydrolysate version of the starting feedstock [where fats, muscle, connective tissue and bones are broken down into complex calcium rich solutions of proteins, carbohydrates and lipids]. To create organic fertilizers for hydroponic growers, these complex solutions must first be aerobically (microbially) digested in order for plants to use them as a nutrient source. The project will utilize the aerobic digestion process developed by Alberta Agriculture and Forestry that was funded in part by SPFG funds.</p> <p>The complex nature of the hydrosylate solutions requires modifications of the existing aerobic digestion process. The project will demonstrate greenhouse techniques to utilize the resulting nutrient solutions to grow plants with and without water recycling. The project will also pursue organic certification of the nutrient solutions.</p>