



BC Sustainable Poultry Farming Group
Project updates for April 22, 2016 meeting

2014-05 Broiler Litter and Horse Bedding Gasification Feasibility Study

- The project showed that gasification is technically and economically feasible, however 40% funding is required to make it financially attractive for investors
- Results from the gasification tests show that both used broiler litter and used horse bedding produce high quality syngas when gasified, and that different feedstock ratios of used broiler litter and horse bedding have little impact on syngas energy content, quality, and tar levels.
- The capital and operating cost estimates for building an EQTEC gasification plant in the Lower Mainland to gasify 50,000 tonnes/year of used bedding and litter to produce 3.95MW of renewable electricity and 1.85MW of heat are \$29,315,000 and \$1,735,000, respectively. Estimated annual revenues from the sale of renewable electricity and heat, tipping fees and ash sales are \$4,462,080. Pre-tax internal rate and cash-on-cash returns for the gasification plant, assuming a 10-year operating period, 60% equity and 40% funding, 70 to 30 debt to equity ratio, 8% interest and 2% inflation are 16.1% and 2.6x, respectively.

2015-01 Genomic Analysis of Wetland Sediment as a Tool for Avian Influenza Virus Surveillance in Wild Waterfowl

- They have identified a wide variety of AI strains and planning is under way for a second phase.

2015-02 The Development and Commercialization of Aerobic Digestion of Poultry Manure to Produce Bio-Active Fertilizers

- They have just started their experiments using nitric acid instead of phosphoric to control the pH and have seen some interesting developments. Trial 7 results: they harvested over half the bioreactor (a comparable volume) after a 3 hour wait period instead of 24 to 48 hours. Currently, they are building the infrastructure to grow strawberries using (100 % recycled) decant nutrient solution.

2015-03 Development of a Point-of-Care PCR diagnostic platform and assays for the poultry industry

- They have now substantially completed the first two milestones of the project. A sample extraction technique to extract DNA from fecal matter has been developed and refined. Nine quantitative real time PCR assays have been developed for the five target organisms. The assays have been ported to the Aquila qPCR hydrogel system and levels of detection established. Assays include: Necrotic enteritis (*Clostridium* spp), Coccidiosis (*Eimeria* spp), Colibacillosis (*E. coli* spp), and Avian influenza (Influenzavirus A).

2015-04 and 2015-05 Four Feathers Poultry Conference March 2016

- The BC Poultry conference was a huge success, with almost 400 participants leading to a variety of networking opportunities and an abundance of information to be shared.
- Most plenary sessions averaged approximately 50 people attending and were held in separate rooms, as two sessions would run concurrently.
 - **Dr. Susan Watkins** spoke in two one hour sessions on Thursday, March 10 and Friday, March 11. She captured the audience with her in depth expertise on water quality and sanitation.
 - **Dr. Bill Cox** spoke in two, half an hour sessions on Thursday, March 10 and Friday, March 11. He informed the audience with his knowledge on bio security, the changes and challenges over the past few years.

2015 07 additional Reducing Salmonella and Campylobacter contamination of poultry

- They have been working on recovering and analyzing lactobacilli that naturally colonize chickens for probiotic activity against *C. jejuni* and *S. typhimurium*. They isolated mocoosa-associated lactobacilli from chicken crop, duodenum, jejunum, ileum, cecum, and colon using selective media (MRL). An extensive library of lactobacilli isolates is being under construction in their lab. The probiotic activity is determined for 20 strains that they have isolated so far and compared to more extensively characterized species/strains of lactobacilli that vary in the metabolism. The well characterized strains (as control strains) include *L. crispatus* JCM 5810, *L. gallinarum* ATCC 33199, *L. helveticus* CNRZ 32 and *L. acidophilus* NCFM.

2015-08 Diatomaceous Earth as a poultry feed supplement (*letter of support*)

- The project has just started; no results yet

2015-09 Antibiotic Free Broiler Chicken Production

- The project has just started; no results yet