

# Dept. of FARE

## SEMINAR ANNOUNCEMENT

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**DEPARTMENT  
of FOOD,  
AGRICULTURAL  
and RESOURCE  
ECONOMICS**

**Ford Ramsey  
Agricultural and Applied Economics  
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### **BAYESIAN THRESHOLD MODELS FOR VON LIEBIG PRODUCTION FUNCTIONS**

**Friday, August 23, 2019  
13:30 – 14:30 p.m.  
Room 107, J.D. MacLachlan Building**

#### Abstract

The von Liebig hypothesis states that crop response functions are characterized by a plateau level of output and non-substitution between inputs. Statistical models incorporating these features can be difficult to estimate due to non-linearities and often rely on asymptotic approximations for model interpretation and comparison. We propose a Bayesian threshold model for estimating production functions of the von Liebig type. The Bayesian approach dispenses with any reliance on asymptotic approximation and allows for predictive constructs to be easily generated; this makes the Bayesian paradigm advantageous for the small samples routinely dealt with in agronomic experiments. We compare the proposed threshold model with the Bayesian mixture model of Holloway and Paris (2002) through a simulation exercise and an empirical application to the classic nutrient trial data of Heady and Pesek (1954).

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