To: Dr. Arnold Bloom, Chair, Search Committee, Guelph, October 31th, 2013

Department of Plant Sciences, University of California Davis.

Dear Dr. Bloom and search committee members,

I am writing to apply for the position of assistant professor in Agroecology and Crop Ecology in the Department of Plant Sciences. I am thrilled to have an opportunity to apply as I feel it is an excellent fit with my research interests, skills and experience. Many of the research and outreach objectives stated for this position are goals that I have been pursuing first as a research assistant at the International Potato Center (CIP, Peru), then as PhD student in Plant Agriculture at the University of Guelph (Canada) and during my two post doctoral fellowships at the International Rice Research Institute (IRRI, Philippines) and University of Guelph. Through these experiences in diverse cropping systems and cultures, my aim has been to gain a deeper understanding of the ecological and social constraints of achieving high yielding and sustainable food production in both high and low input agroecosystems. I feel these experiences will translate well to the challenges and opportunities that growers are facing in California and will allow me to develop an innovative research program.

I am an aggie, agronomist by training and agroecologist at heart, with expertise in physiology of crop tolerance to abiotic stresses in tropical and temperate agroecosystems. My current research focuses on developing and testing field crop system management strategies that improve temperate cropping systems resilience to the upcoming changes in climate and resource availability. Using a 30-year dataset gathered in two long-term rotational and tillage trials I manage at our experimental station, I have recently established that diversifying corn and soybean-based rotations with legumes and small grains improve input use efficiencies and yield resilience to abnormal weather patterns over time. As a follow up, I am currently testing management practices to include red clover and wheat in widely used rotations by relay-cropping. I am also investigating various legume-cereal intercrop combinations for their adaptability to our short growing seasons and summer seeding of emergency forages. Over the last 7 years, I have also been involved in several projects aimed at increasing staple food crop production under drought or less intensive water and nitrogen management. I have screened a variety of germplasm under low nitrogen or dry target environments, from rice breeding populations to corn teosintes, potato landraces and transgenics; and characterized the physiological and morphological mechanisms involved in adaptation and yield stability, including changes in root architecture.

In addition to research, I consider teaching students and communicating results to growers and the general public an important part of my responsibility as a scientist. As an example of outreach to farmers, I am currently leading the development of a smartphone application to assist growers in their decision to diversify crop rotations based on research results. I also currently serve as an undergraduate lecturer on Fundamentals of Agroecology and Sustainable Management of Field Crop Systems (with 150 students) and advise two master students. I have developed communication skills to efficiently convey information to a broad audience from serving on various student and departmental committees, leading public discussions and teaching and supervising numerous undergraduates, graduate students and technicians in Peru, Canada and the Philippines.

I hope that the combination of my graduate education, interest of various agricultural systems, teaching and extension, will help to tackle major sustainability challenges associated with closing yield gaps in California and elsewhere. Specifically, I intend to develop research projects that better integrate the dynamic of field ecological processes as affected by management with crop physiology. I believe this approach will open new opportunities to develop effective solutions for farmers to mitigate the effects of water and nutrient shortages and help improve resource use efficiencies at the system level.

I include in this application package my *curriculum vitae* and statements regarding my research and teaching interests. I am looking forward to the opportunity to meet with the members of the Search Committee to demonstrate further how I could contribute to teaching and complement the on-going research in your department. The reputation of UC Davis as a community where students receive a high-quality education in a vibrant community and the university long-term commitment to environmental sustainability is exactly the setting in which I would like to grow as an academic.

Sincerely,

Amélie Gaudin.