



African Agricultural Economics Exchange Student Intrigued by “Whole Farm” Evaluation Approach

By Lisa Fields

Graham Swanepoel grew up on a 65,000 hectare (over 160,000 acres) cattle ranch in Zimbabwe a mile away from the nearest neighbors. His father was general manager of the ranch and game preserve. In contrast to the semi-arid climate of his home, Swanepoel chose to attend Lincoln University in New Zealand where he was immersed in grassland agriculture. He explained, “A requirement of my Ag Science degree at Lincoln was to work for 12 weeks each summer in local agriculture. I chose work experiences with dairy and livestock farms. Their intensively managed pastures are their core business resource. At home we raised cattle exclusively on lower yielding native grasses as the soils in Zimbabwe are very depleted.”

Exposure to this contrast in resources and farm management inspired Swanepoel to learn more. “I took business courses at Lincoln and grew interested in the economics of farm management. This intrigued me to learn about agriculture in the U.S. and I decided to seek an exchange arrangement with Cornell.” Swanepoel began his American experience as an Agricultural Science undergraduate through the College of Agriculture and Life Sciences (CAL S) exchange program in January of 2009.

That spring semester, Swanepoel took the Whole Farm Nutrient Management course with Dr. Quirine Ketterings, Associate Professor and Leader of Cornell’s Nutrient Management Spear Program (NMSP), and Dr. Mike van Amburgh, of the Department of Animal Science. “Viewing the whole farm as an integrated system was an exciting learning experience,” Swanepoel commented. “I wanted to work on projects that engaged that concept including economic analysis, so I asked Quirine about work opportunities with her program.”

Ketterings said, “Engaging students in the research and extension process is a key part of our program mission. We have greatly enjoyed working with students who are eager to learn, and bring us unique experiences over the past several years and I did not hesitate to say yes

when Graham asked if he could join us for the summer. His background, his interest in whole farm analyses and farm economics, and his desire to learn more about the environmental and agronomic production issues of farms in our region as well as his exposure to such diverse agricultural systems worldwide, made him a great asset to our team and our projects.”



Graham Swanepoel interned with the Cornell Nutrient Management Spear Program after taking a Whole Farm Nutrient Management course as an exchange student at Cornell University.

Swanepoel was most involved in the Whole Farm Nutrient Analysis project, working closely with NMSP staff members Patty Ristow and Caroline Rasmussen. The project examines data from participating farms’ financial analyses using the Cornell Dairy Farm Business Summary (DFBS), their cropland nutrient status and inputs through Cornell Cropware, and whole farm nutrient balance analysis with the Mass Nutrient Balance program. Ristow summarized the project. “We explore the data sets to look for commonalities across farms

that may link agronomic and environmental factors with farm profitability. Our project objective is ultimately to create one concise evaluation program based on measurable indicators that can be used by farm managers for goal setting and tracking progress throughout the year. We are looking to hone in on the data and presentation styles that are most useful to farm managers."

During his 11-week internship, Swanepoel's role focused on the economic analysis, but he was involved in the entire process. "We have a philosophy in the NMSP of sharing the workload and involving everyone in project discussions so Graham also got exposed to a broad range of other research topics and ideas. His questions about the projects provided all of us with a fresh perspective." Ketterings explained.

Swanepoel described the work involved. "We soil sampled all the fields on eight farms and prepared the samples for the lab. While waiting for the results we reviewed the farms' existing data and when we received the soil sample results, we identified fields with higher nutrient loading. Then we looked for correlations with fertilizer and feed inputs from the mass balance assessment as well as expenses from the DFBS. In some cases we found opportunity to reduce feed and fertilizer input expenses by improving efficiency of manure nutrient use on the crop end, and of the forage resource on the feeding end."

Ristow noted, "Graham was a great asset to the project. He brought refreshing new ideas and perspectives to our conversations about whole farm analysis. Determining the intersection between agronomic efficiency and farm profitability is a difficult task and Graham's work has moved that part of the project forward."

The work with the NMSP gave Swanepoel exposure to on-farm research and working in collaboration with local farmers. He commented on meeting with the farmers. "I learned from working with Patty and the Cooperative Extension Educators that it is

crucial to consider the farmer's perspective when evaluating the data." Swanepoel was particularly impressed by the receptiveness of the farms. "It was a new experience for me to see a smaller farm as well as the larger ones very keen on profitability and fine-tuning their management."

Swanepoel's exposure to cultural differences as he's moved from agriculture in Zimbabwe to agriculture to New Zealand and the U.S has been an eye-opening experience. "The New Zealand farmers are in a highly competitive situation with no subsidies or government help of any kind. The market there dictates everything, so they look at dollars and cents first and foremost. The farms I worked with in New York State through the Whole Farm Nutrient Analysis Project were glad to get the input from the project, but wouldn't have necessarily done that analysis otherwise."

Swanepoel noted that the integration between land and animals is inherent in the grass-based agriculture of New Zealand. In contrast, the farms he became familiar with in New York State functioned in a specialized manner, with separate managers for cows, calves and crops.

Currently Swanepoel is in California, working as a project associate for the non-profit organization, Sustainable Conservation, in Modesto. He is very interested in pursuing a graduate degree to further his education in agricultural economics and commented on the inspiration provided by the NMSP staff to pursue further education. "The exposure to their skills and the time spent in discussion with such analytical minds made me realize the value of further study. Quirine, Patty and Caroline were a big influence on my choice to pursue a graduate degree."

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The **Nutrient Management Spear Program** (NMSP) is an applied research, teaching and extension program for field crop fertilizer and manure management on dairy and livestock farms. It is a collaboration among faculty, staff and students in the Department of Animal Science, Cornell Cooperative Extension, and PRO-DAIRY. Our vision is to assess current knowledge, identify research and educational needs, facilitate new research, technology and knowledge transfer, and aid in the on-farm implementation of strategies for field crop nutrient management including timely application of organic and inorganic nutrient sources to improve farm profitability while protecting the environment. An integrated network approach is used to address research, extension and teaching priorities in nutrient management in New York State. For more information on NMSP projects and extension/teaching activities, visit the program website (<http://nmssp.cals.cornell.edu>) or contact Quirine Ketterings at qmk2@cornell.edu or (607) 255-3061.