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**Progress Report**

PROJECT TITLE: Farmable Vegetative Buffers

PROJECT NUMBER:

REPORTING PERIOD: February 1 – April 30, 2018

PRINCIPAL INVESTIGATOR: John Baker

ORGANIZATION: USDA-ARS

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1.) PROJECT ACTIVITIES COMPLETED DURING THE REPORTING PERIOD. (*Describe project progress specific to goals, objectives, and deliverables identified in the project workplan.*)

Jon Alexander has been working with a post-doc in the Agronomy Dept. on modeling corn production in kura clover living mulch. During this time period we have gathered and organized last years field data and weather conditions with hopes to simulate long-term carbon and nitrogen balance as well as cropping system response under different soil and weather variables.

Additionally, Rod and I have worked to design and test a low-cost method for measuring ammonia volatilization. The chambers have been built and tested with plant residue clippings, and the test results will be ready today or tomorrow. These chambers will be used to measure gaseous N loss as a function of spring clover management strategies: tillage, mowing, and chemical suppression.

2.) IDENTIFY ANY SIGNIFICANT FINDINGS AND RESULTS OF THE PROJECT TO DATE.

We found that in 1st year corn following kura clover (corn planted into established kura clover using zone tillage), there was no response to added N, i.e. – no significant differences in yield across the range of applied N from 0 to 223 lb acre-1, with yields averaging approximately 200 bu acre-1. For second year corn in kura living mulch, yields were optimized at an N rate of 107 lb acre-1, well below U of M recommendations. Stover yields followed the same trends as grain yields. Residual soil N at the end of the season was consistent with these results, i.e. – at optimum N rates (0 for 1st year, 107 for 2nd year) there was very little residual N susceptible to off-season leaching.

Our seed yields on kura clover were much higher than they were the first time we produced seed. We believe the difference was due to mowing at a slower speed, to minimize shattering.

3.) CHALLENGES ENCOUNTERED. (*Describe any challenges that you encountered related to project progress specific to goals, objectives, and deliverables identified in the project workplan.*)

We still have not identified a producer who would allow us to put in some demonstration living mulch buffers.

4.) FINANCIAL INFORMATION (*Describe any budget challenges and provide specific reasons for deviations from the projected project spending.*)

no challenges

5.) EDUCATION AND OUTREACH ACTIVITES. *(Describe any conferences, workshops, field days, etc attended, number of contacts at each event, and/or publications developed to disseminate project results.)*

Kura Clover as a Living Mulch – presentation to Forever Green Initiative, University of Minnesota   March 2, 2018 ~20 attendees

Poster presentation in Monsanto Graduate Student Poster Session  February 21, 2018

~50 attendees

Lightning description of project LAAS 3 Minute Thesis Competition     February 21, 2018

~30 attendees

2018 Production Agriculture Symposium – University of Minnesota – St. Paul  February 15, 2018

~50 attendees

Minnesota Agricultural Expo – Mankato, MN  January 25, 2018

~30 attendees