

**Paul C. And Edna H. Warner Endowment Fund for Sustainable Agriculture
Report Form**

Soil Nutrient Contribution to Perpetual Warm Season Grasses

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Summary and Objectives:

The intention of this research project was to document the soil contribution of soil macro-nutrients to establish baseline nutrient data that may ultimately be useful in determining the sustainability of a perpetual switch grass stand harvested yearly. While that is still the main focus of the study, the research may yield other valuable information without additional cost and very little additional effort.

What was done?

A nine-acre field of switch grass near Milan, Ohio will be the site of this study. On that nine-acre site, 5 to 8 test zones will be established. Each test zone will be approximately 40 square feet in area. The test zones will not be placed randomly, but rather randomly with bias away from the edges of the field and with bias toward areas of the field that have substantial grass cover.

During 2009 twelve evaluation sites were established (6 Tall fescue, 6 Switch grass), each being 1/1000 of an acre and circular. A pipe was driven in the center of each evaluation plot as a semi-permanent marker. The plots were also identified with flags.

Each plot was probed eight times to gather soil samples. Samples were taken for the top 3 inches of soil and for the soil layer from 3 to 9 inches deep. These samples will serve as the reference data for the start of the study.

What were the results?

All of the plots will be harvested just once a year. Harvest is planned for December of each year, but because of snow currently on the ground, harvest has been postponed until the first opportunity. Yield data will be collected and soil samples will be drawn again for comparison to the initial soil tests. My hope is to repeat this process for ten years. I expect more usable results starting next year.

How have the results contributed or will they contribute sustainable agriculture?

Over the last several years, as our country has searched for perpetual sources of fuel, a great deal of attention has been given to native grasses. Switch grass, has been particularly popular with the press as a possible biomass crop worthy of further study. Switch grass is indeed one of many native prairie grasses that once dominated much of the United States, but as a warm season grass, it is quite foreign to the experience of most agricultural producers in this country.

If and when warm season grasses ever emerge as a viable source of energy, current local production data will become extremely valuable to producers. Through the goodwill of a local producer, OSU Extension has the opportunity to study a nine-acre seeding of switch grass, which was seeded eleven years ago. Through soil analysis, Extension intends to capture two sets of useful information. First, yield data or dry matter produced annually and second, the contribution of soil nutrients to the crop, if the dry matter is removed for use as fuel.