1. **Executive Summary:**

NSIP has reviewed current, publicly accessible phenotypic and genetic data for diverse banana germplasm. NSIP has identified a preliminary set of 1,000 banana genotypes that represents the global diversity of banana available for breeding, which will be further refined in consultation with IITA. The set includes breeding materials from the IITA, NARO, EMBRAPA, and NRCB breeding programs, as well as select 2x, 4x, and 3x accessions from the ITC germplasm collection. Over the coming months NSIP will coordinate tissue sampling and genotyping activities with IITA, NARO, EMBRAPA, NRCB, and ITC. The data will then be used to generate a comprehensive assessment of the genetic diversity of the 1,000 identified accessions to provide insights into relationships among and within breeding programs and global banana collections.

2. **Primary Outcomes, Intermediate Outcomes, Outputs and milestones:**

NSIP's primary outcome at 6 months is having established the criteria for accessions to be included in this assessment and having proposed a set of key breeding lines, commercial cultivars, and 2x and 4x Musa germplasm representing the global diversity of banana available for breeding. This is a key milestone which will enable the project to proceed to the next milestones, including genotyping and analysis of the global diversity of banana in order to propose genotypes of priority in meeting the breeding objectives of the project.

Additionally, NSIP and IITA have:

a. Further defined the goals and objectives of the analysis of the global diversity of banana.
b. Set action items and deadlines for completion of supporting tasks to the analysis of the global diversity of banana.
c. Begun planning for tissue sampling and genotyping.

3. **Results to date:**

As of April 15, 2020, NSIP is progressing on schedule towards the completion of the analysis of the global diversity of banana. NSIP has identified a preliminary set of 1,000 banana accessions for genotyping that represent the global diversity of banana available for breeding.

4. **Challenges Encountered:**

NSIP has encountered some challenges in compiling the data necessary for identifying the collection of accessions to genotype for the analysis of the global diversity of banana, including:

a. A limited number of 2x and 4x accessions publicly available in the ITC collection.
b. Inconsistent format and availability of existing phenotypic and genotyping data.

5. **Lessons learned:**

NSIP has become more familiar with the available phenotypic and genotypic data, germplasm repositories, and breeding programs working on banana improvement. An overview of the diversity available for breeding better bananas has been developed.

6. **Work Plan:**

NSIP will work with IITA and partner institutes to review and finalize the set of 1,000 Musa accessions to include in the analysis of the global diversity of banana. Once the set is finalized, NSIP will work with IITA, partner institutes, and ITC to obtain tissue samples or DNA samples for genotyping. Once the population has been genotyped, NSIP will perform a comprehensive study

on the analysis of the global diversity of banana which elucidates the relationships within and among breeding germplasm, as it relates to key breeding characteristics.

7. Budget Summary:

The expenses for NSIP for this reporting period are primarily payroll and related costs. We are on track to meet our allotted budget for the year.

8. Other relevant project information:

At this time, NSIP does not have any additional relevant project information.