apparent with an average yield increase of 63% compared to farmers' seed (25.7 vs 15.7 t/*ha^{-1}). As a result, QDPM has been ratified by the Ethiopian government as a legal seed quality control standard in March 2015 – however it has been renamed Quality Declared Seed.

15. Response of sseed tubers containing dicamba and glyphosate residues

Andy Robinson[1,2], Nelson Geary[1] and Harlene Hatterman-Valenti[1]

1 North Dakota State University, USA
2 University of Minnesota, USA

Corresponding author: Andy Robinson, andrew.p.robinson@ndsu.edu

The use of herbicides near seed potato farms is concerning to seed potato growers as potato seed tubers have been reported to be affected by glyphosate or dicamba when the mother plants have been exposed to glyphosate or dicamba. The objective of this study was to determine the effects of planting 'Russet Burbank' potato seed tubers from mother plants that were exposed to dicamba (4, 20 and 99 g ae ha^{-1}), glyphosate (8, 40 and 197 g ae ha^{-1}) and the combination of dicamba and glyphosate during tuber initiation the previous growing season. Daughter tubers were planted back near Oakes and Inkster, North Dakota, USA in 2016 and 2017, at the same research farm they were grown the previous year. The highest rates of dicamba (99 g ha^{-1}), glyphosate (197 g ha^{-1}) and the combination caused 17 to 72% reduction in emergence and 23 to 57% reduction in total yield when compared to the non-treated check. Dicamba applied at 20 g ha^{-1} reduced yield 11 to 33%. Dicamba and glyphosate can reduce emergence and total production when residues are carried over in seed potatoes. 'Russet Burbank' was more susceptible to dicamba than glyphosate.

16. Soil microbial diversity of native potato under conventional and non- conventional tillage: taxonomic and functional approach using whole genome sequencing

Aura Liz Garcia Serquén[1], Julio César Chávez Galarza [1] and Cinthya Zorrilla Cisneros[1]

1 Instituto Nacional de Innovación Agraria (INIA), Lima, Peru

Corresponding author: Aura Liz Garcia Serquén, auralizgarcia@gmail.com

The inadequate agricultural management practices of the most diverse ecosystem on earth are producing erosion and change and/or loss of the soil microbial diversity.

The main goal of this study was to identify the taxonomic and functional aspect of the microbial diversity present in soil samples collected in agricultural fields of native potatoes under conventional and non –conventional tillage from Huancavelica, Peru. To fulfill this goal, we used whole genome sequencing.

Our preliminary results showed that the majority of the sequences can be attributed to *Bacteria* (21.05%), *Archaea* and *Eucarya* (0.3% and 0.2%, respectively), and 78% showed no similarity with any known sequences for both types of soil management. The functional analyses found 90 proteins associated with the Gene Ontology - nucleobase-containing compound metabolic process - in conventional tillage; and 95 proteins associated with Gene Ontology: - phosphate-containing compound metabolic process - in non –conventional tillage.

Our results are the first attempt to determinate the taxonomic and functional profile of microbial diversity present in the agricultural soil of native potatoes. It also represents the beginning of a new area of research at The National Institute of Agricultural Innovation (INIA for its acronym in Spanish) with the aim of finding new ways to know our genetic resources.

17. Feasibility improvement of emergence of buds and yield indices of different cultivars of minituber potato influenced by different composition of planting bed and cultivation methods in greenhouse conditions

Farshid Hassani[1]

1 *Seed and Plant Certification and Registration Institute (SPCRI), Agricultural Research Education and Extension Organization (AREEO), Tehran, Iran*

Corresponding author: Farshid Hassani, farshid.shz@g,mail.com

In order to evaluate the effect of different cultivars, substrate combinations and types of cultivation on bud emergence and yield of mini-tubers, an experiment was conducted based on completely randomized design with three replications in the greenhouse at the Seed and Plant Certification and Registration Institute (SPCRI) in 2012-2013. Three factors were considered: three cultivars (*Agria, Sante , Satina*) , different substrate combination of planting at six levels: Peat moss+Sand (1:1 by volume), Coco peat+Perlite+Sand (1:1:1), Peat moss + Perlite (3:1) , Peat moss+Sand+ Perlite (1:1:1) , Coco peat + Perlite + Peat moss (1:1:1), Coco peat+Sand (3:1), and type of cultivation in beds at two levels (pot and direct planting). Results indicated that the effect of cultivars and different substrate combinations were significant at ($P<0.01$) on the number of day to bud emergence at the soil surface, total production of mini-tubers, total tuber number in standard size and tuber dry weight per plantlet. Peat moss+sand bed (1:1) showed high total number of mini tubers, tuber number in standard size and tuber dry weight per plantlet with the average of 8, 6.66 tubers and 4.41 g respectively. *Santé* cultivar had the highest number of tubers and number of tuber in standard size with 8.80 and 7.91 tubers, respectively. The highest number of tubers with a mean of 6.95 tubers and number of tubers in standard size with a mean of 5.96 tubers was obtained in direct planting in bed. The results showed that *Sante* cultivar had the best performance in direct cropping in Peat moss+Sand bed.