Building Soil Health Necessary for Increasing Food Production Capacities at the Lac Courte Oreilles Ojibwe College Sustainable Agricultural Research Station

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Goals and Objectives

By comparing traditional methods employed by western farming and practices meant to increase nutritional properties and soil characteristics, can the LCO College Sustainable Agriculture Research Station (LSARS) increase crop production which can meet increasing demands of the LCO community while maintaining sustainable health of the soil?

Till…No Till…Compost…No Compost…Manure…No Manure…Cover Crops…No Cover Crops…Indigenous Plants & Grasses…No Indigenous Plants & Grasses…Singular….Combinations of These…Or Doing Nothing (ie. Control Plots)
Years 1 & 2

METHODOLGY:
2019 YEAR 1
Measured fields
Brush cut & mow
Subdivide into plots
Soil analyses of each plot
*Ag Method designations & application
Plot maintenance
Planting winter cover crops

2020 YEAR 2
Spring soil analyses
Repeat Ag methods according to grid design,
Plant same quantities of corn, bush beans, and onions with
end of season analyses of crops & soil
Plot maintenance
Prep for winter & for Year 3.
Years 3 & 4(?)

2021
Continued analyses of successes or nonsuccesses of methods with soil & crop health.
Ag methods will be compared to control plots.
Recommendations collated.

2022
Need for continuance?
This 3 year Research Project will hopefully be the starting point to improving soil health with increased crop production on LSARS. However, 3 years will not be enough time to turn around the results of a century plus of degradation and properties. But knowledge gained and results garnered will provide tools to continue the work.
The results will be shared with other tribal, community and farming interests that it may assist them in restoring their land to health and increase the production of food which will then be made available to the people they serve.
What we have learned from this research project so far…

• It is going to take more than 3 years to bring the current soil research areas to healthy levels with improved properties for successful crop production

• It is reasonable to conclude that tilling, at least initially is necessary to break up the severe historic compaction of the soil, to provide better infiltration and respiration of the soil.

• Need to raise pH levels of the soil with alkali source such as ag lime
There is a need for more aggressive applications and quantities of the amendments to the soil such as the manure & compost.

Though circumstances prevented the macrogenomic analysis of the crops grown this year, it is apparent from the stunted corn plants, the nonfruiting bean plants, & the total failure of the onion crop that very poor soil conditions exist, & with the lab soil analysis which shows deficits in all categories of essential chemicals and minerals much work needs to be done to the soil to restore health & make it possible to cultivate successfully nutritious produce.
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