



Food and Agriculture
Organization of the
United Nations

3rd Workshop of the International Network of Black Soils



Chapter 4

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Beneficial management practices (BMPs) to meet the challenges to black soils

- 95% completed
- Can be improved by increasing localized BMP in the chapter
- Yuxin Tong is helping but my lack of personal contacts in these regions has hamper finalization of the chapter.
- Can be finalized in 3-4 days once we are satisfied with input from other regions.

Current Outline

Introduction

- 1. Changes in land use and land management**
- 2. Tillage and seeding systems**
- 3. Water management**
- 4. Fertilization and nutrient management**
- 5. Biomass management of annual and perennial crops**
- 6. Grassland management**
- 7. Prevalent and Alternative Production Systems**

Current Outline

Introduction

1. Changes in land use and land management

2. Tillage and seeding systems

1. The purpose of tillage on black soils
2. Soil conservation management practices for the black soils
 1. Non-Inversion tillage (Minimum Tillage or Conservation Tillage)
 2. No-Till Strip tillage
 3. No-Till

Current Outline

3. Water management

1. Importance of water
2. Management of water
3. Irrigation systems and the management practices used to reduce the impact of irrigation on black soils and the environment
4. Management of water in dryland systems on black soils

Current Outline

4. Fertilization and nutrient management

1. Major nutrient management issues or challenges

1. Soil organic matter content
2. Macro and micro nutrient content
3. Soil texture
4. Soil pH
5. Environmental conditions
6. Soil testing

2. Recommended strategies for effective nutrient management

1. Soil health
2. 4R nutrient principles
Source, Rate, Time, Placement

3. Adoption

Current Outline

5. Biomass management of annual and perennial crops

1. Importance of Biomass.

1. Removal of biomass that lowers organic carbon in soil
2. Removal of biomass increases erosion potential
3. Accelerated decomposition of biomass

2. Management practices that reduce biomass retention

1. Biomass harvest
2. Grazing Biomass

3. Beneficial management practices

1. Crop rotation to provide biomass with a high C to N ratio
2. Cover Crops
3. Shelter/Buffer belts
4. Perennial Crops

Current Outline

5. Grassland management

1. Extent of grazing on black soils
2. Grazing management practices that reduce sustainability of the land.
 1. Overgrazing
3. Grazing management practices that improve sustainability of the land
 1. Grazing Intensity
 2. Site Productivity
 3. Stocking Method (Grazing Systems)
 4. Herbivore Type
 5. Plant Cover and Plant Species

Current Outline

7. Prevalent and Alternative Production Systems

1. Grazing of Perennial Forages in a Rangeland
2. Crop/Livestock Farming System
3. Small grain cropping systems
4. Extent of grazing on black soils
5. Wide row cropping systems
6. Grazing management practices that reduce sustainability of the land
7. Organic cropping system

Questions that I would like answers for

- Under what circumstances do we have black soils with low residual levels of K in soil?
- Soil testing are there large differences in the tests used among the black soil regions of the world?
- Timing of fertilizer application at spring seeding or just prior to for all crops except corn
- Extent of black soil used for grazing around the world?
- Best Management Practices that are local and important not used elsewhere?