Programa Analítico de Disciplina

AGF 613 - Matéria orgânica do solo

Campus Florestal -	
Catálogo: 2023	
Número de créditos: 4 Carga horária semestral: 60h Carga horária semanal teórica: 4h Carga horária semanal prática: 0h	Semestres: I, II e III

Ementa
Dinâmica da MOS Quantificação e composição da MOS MOS, agricultura e o ambiente

Conteúdo

Unidade	T	P	To
1. **Dinâmica da MOS** 1. Conceitos sobre matéria orgânica do solo (MOS) 2. Constituintes da MOS 3. Processos de decomposição e estabilização da MOS 4. Ciclos biogeoquímicos do C e N	20h	0h	20h
2. **Quantificação e composição da MOS** 1. Amostragem e determinação do C no solo 2. Técnicas para fracionamentos físico e químico da MOS 3. Estudo da composição da MOS por técnicas espectroscópicas 4. Uso de isótopos estáveis em estudos ambientais	20h	0h	20h
3. **MOS, agricultura e o ambiente** 1. MOS e qualidade do solo 2. Emissões de gases de efeito estufa (GEE) pela agricultura (CO_2, CH_4 e N_2O) 3. Técnicas para amostragem e quantificação de GEE 4. Modelos para simular a dinâmica da MOS e emissões de GEE	20h	0h	20h
Total	**60h**	**0h**	**60h**

Teórica (T); Prática (P); Total (To);

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Bibliografias básicas	
Descrição	**Exemplares**
Banwart, S.A.; Noellemeyer, E.; Milne, E. 2014. Soil carbon: science, management and policy for multiple benefits. SCOPE. Volume 71. 420p.	0
Brady, N.C.; Weil, R.R. 2008. The nature and properties of soils. 14Ed. New Jersey:Prentice Hall. 965p.	0
Cotrufo, M. F., & Lavallee, J. M. 2022. Soil organic matter formation, persistence, and functioning: A synthesis of current understanding to inform its conservation and regeneration. Advances in Agronomy. 66p.	0
Magdoff, F.; Weil, R.R. 2004. Soil Organic Matter in Sustainable Agriculture. London:CRC Press. 398p.	0
Shurpali, N., Agarwal, A. K., & Srivastava, V. K. (Eds.). (2019). Greenhouse gas emissions: Challenges, technologies and solutions. Singapore: Springer. 188p.	0

Bibliografias complementares	
Descrição	**Exemplares**
Abberton,M.; Conant, R.; Batello, C. 2010. Grassland carbon sequestration: management, policy and economics. FAO Integrated Crop Management. Rome:FAO. 338p.	0
Canadell, J.G.; Pataki, D.E.; Pitelka, L.F. 2007. Terrestrial Ecosystem in a Changing World. New York: Springer. 336p.	0
Grewer, U., Bockel, L., Galford, G., Gurwick, N., Nash, J., Pirolli, G., & Wollenberg, E. 2016. A methodology for greenhouse gas emission and carbon sequestration assessments in agriculture: supplemental materials for info series analyzing low emissions agricultural practices in USAID development projects. FAO: CCAFS Working Paper. 187p.	0
Jhariya, M. K., Meena, R. S., & Banerjee, A. (Eds.). (2021). Ecological intensification of natural resources for sustainable agriculture. Singapore: Springer. 655p.	0
Martinelli, L.A.; Howarth, R.W. 2006. Nitrogen cycling in the Americas: natural and anthropogenic influences and controls. Amsterdam: Springer. 274p	0

Syllabus

AGF 613 - Soil organic matter

Campus Florestal -	
Catalog: 2023	
Number of credits: 4 Total hours: 60h Weekly workload - Theoretical: 4h Weekly workload - Practical: 0h	Period: I, II e III

Content
SOM dynamics SOM quantification and composition SOM, agriculture and the environment

Course program

Unit	T	P	To
1. **SOM dynamics** 1. Concepts on soil organic matter (SOM) 2. Primary components of SOM 3. SOM decomposition and stabilization processes 4. Biogeochemical cycles of C and N	20h	0h	20h
2. **SOM quantification and composition** 1. Sampling and determination of C in soils 2. Techniques for physical and chemical fractionation of SOM 3. Evaluation of SOM composition by spectroscopic techniques 4. Use of stable isotopes in environmental studies	20h	0h	20h
3. **SOM, agriculture and the environment** 1. SOM and soil quality 2. Greenhouse gas (GHG) emissions in agriculture (CO_2, CH_4 and N_2O) 3. Techniques for GHG sampling and quantification 4. Use of models to simulate SOM dynamics and GHG emissions	20h	0h	20h
Total	**60h**	**0h**	**60h**

Theoretical (T); Practical (P); Total (To);

AGF 613 - Soil organic matter

Fundamental references	
Description	**Copies**
Banwart, S.A.; Noellemeyer, E.; Milne, E. 2014. Soil carbon: science, management and policy for multiple benefits. SCOPE. Volume 71. 420p.	0
Brady, N.C.; Weil, R.R. 2008. The nature and properties of soils. 14Ed. New Jersey:Prentice Hall. 965p.	0
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Complementary references	
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