The characterisation of farmed Organic Soils in the Waikato Basin.

Miss Sylvia Sabbagha[1], Dr. Megan Balks[1], Dr. Gina Lucci[2]
[1]University Of Waikato, [2]AgResearch

The Waikato has about half of New Zealand's Organic Soils (formed in peat), about 80% of which has been drained and developed. The objective of this study was to characterise farmed Organic Soils in the Waikato Region to help understand the range of soil properties.
Soils from six dairy farms between Rukuhia and Orini, were described and samples were collected at depths of 0-7.5 cm, 7.5-15 cm, and 15-30 cm. Anion storage capacity (ASC), organic matter content (OM %) and pH were measured. Two sites were identified as highly developed, two sites were identified as less developed and two sites had properties of both highly developed and less developed peat (mid-developed soil).
The results showed key differences between the highly developed and less developed Organic Soils. The highly developed soils had ASC's from 75-95 %, OM% ranged from 29-48 %, with peat depths of 0.6-1.8 m, and humified organic matter composed of mainly sapric material. The less developed soils had ASCs ranging from 10-20 %, OM% ranging from 70-82 %, and peat depths ranging from ~4 m to >10 m. The less developed soil had a greater content of fibric material, especially at depths > 30 cm. The mid developed soils had medium to high ASC from 51-71 % coupled with high OM% ranging from 62-85 %, and humic to mesic organic matter. Soil pH ranged from 4.42 to 6.28, but had no correlation to the stage of development. The differences between highly developed peats and less developed peats could be key factors in the pasture response to nutrient inputs and the fate of nutrient in the soil.